



TEST REPORT
IEC/EN 61010-1
Safety requirements for electrical equipment for measurement,
control, and laboratory use
Part 1: General requirements

Report Number: CHTSE20010015

Report verification:



Date of issue.....: 2020-01-07

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Testing Laboratory: **Shenzhen Huatongwei International Inspection Co., Ltd.**

Testing location/ address: Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, Guangdong, China

Applicant's name: **Acrel Co., Ltd.**

Address: No.253, Yulv Road, Jiading District, Shanghai, China

Manufacturer's name: **Jiangsu Acrel Electrical Manufacturing Co., Ltd.**

Address: No.5, Dongmeng Road, Nanzha Street, Jiangyin City, Jiangsu Province, China

Test specification:

Standard: IEC 61010-1:2010 (Third Edition)
 EN 61010-1:2010

Test procedure: Test report

Non-standard test method.....: N/A

Test Report Form No......: IEC61010_1J






Test Report Form(s) Originator: VDE Testing and Certification Institute

Master TRF.....: 2013-11

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Test item description	: ADL
Trade Mark	: Acrel
Manufacturer	: Jiangsu Acrel Electrical Manufacturing Co., Ltd.
Address	: No.5, Dongmeng Road, Nanzha Street, Jiangyin City, Jiangsu Province, China
Model/Type reference	: ADL3000-E
Listed Model(s)	: ADL3000-E/C
Ratings	: Power supply: 3x220/380VAC, 50/60Hz, 10VA, OVC III Measuring Voltage input: 3x220/380VAC, 50/60Hz, CAT III Measuring Current input: 3x10(80)A

Summary of testing:	
Tests performed: The sample(s) tested complies with the requirements of the standard(s). The EUTs (equipments under test) passed all relevant tests.	Testing location: Shenzhen Huatongwei International Inspection Co., Ltd. Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, Guangdong, China
Summary of compliance with National Differences: N/A	
Copy of marking plate: The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.	
<div data-bbox="395 719 1262 1200" style="border: 1px solid black; padding: 10px;"><p>ADL Type : ADL3000-E Input: 3x230/380V AC 50/60Hz 3x1p(80)A AC</p><p style="text-align: right;">Made In China</p><p>    </p><p>Acrel Co., Ltd Jiangsu Acrel Electrical Manufacturing. Co., Ltd</p></div>	

Test item particulars:	
Type of item	Measurement
Description of equipment function.....	Monitor Wye or Delta connected power system
Connection to MAINS supply.....	Permanent
Overvoltage category	III
POLLUTION DEGREE	2
Means of protection	Class II
Environmental conditions	Extended (Specify): -25°C-55°C; RH: ≤95%, altitude below 2000 meters
For use in wet locations.....	No
Equipment mobility	Built-in
Operating conditions.....	Continuous
Overall size of equipment (W x D x H).....	88x126.5x69.5(mm)
Mass of equipment (kg)	0.43kg
Marked degree of protection to IEC 60529.....	IPx0
Altitude during operation (m)	Up to 2000
Altitude of test laboratory (m)	Less than 500
Possible test case verdicts:	
- Test case does not apply to the test object	N/A (Not Applicable)
- Test object does meet the requirement	P (Pass)
- Test object does not meet the requirement	F (Fail)
Testing:	
Date of receipt of test item.....	2019-12-24
Date (s) of performance of tests.....	2019-12-24 to 2020-01-07
General remarks:	
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory. "(see ENCLOSURE #)" refers to additional information appended to the report. "(see Form A.xx)" refers to a table appended to the report. Bottom lines for measurement tables Form A.xx are optional if used as record.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	

General product information:

The ADL is a smart Meter which designed for power supply system, industrial and mining enterprises and utilities to calculate the electricity consumption and manage the electric demand.

ADL mainly used for measurement of Voltage, Current, Power, PF, Frequency, 31st harmonic and total harmonic content.

The measurement category manufacturer declared is CAT III.

Unless specified, all test performed on the Model ADL3000-E.

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

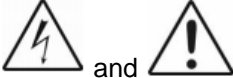


Indicate used abbreviations (if any)

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict
4	TESTS		P
4.4	Testing in SINGLE FAULT CONDITIONS		P
4.4.1	Fault tests	(see Form A.1)	P
4.4.2	Application of SINGLE FAULT CONDITIONS		P
4.4.2.1	SINGLE FAULT CONDITIONS not covered by 4.4.2.2 to 4.4.2.14	(see Form A.1)	—
4.4.2.2	PROTECTIVE IMPEDANCE	(see Form A.6)	P
4.4.2.3	PROTECTIVE CONDUCTOR	(see Form A.6)	N/A
4.4.2.4	Equipment or parts for short-term or intermittent operation	Continuous operation equipment.	N/A
4.4.2.5	Motors	No motors	—
	– stopped while fully energized		N/A
	– prevented from starting		N/A
	– one phase interrupted (multi-phase)		N/A
4.4.2.6	Capacitors	No such capacitors	N/A
4.4.2.7	MAINS transformers		P
4.4.2.7.2	Short circuit	(see Form A.39)	P
4.4.2.7.3	Overload	(see Form A.26B and A.40)	P
4.4.2.8	Outputs	RS485	P
4.4.2.9	Equipment for more than one supply	Only one supply	N/A
4.4.2.10	Cooling	(see Form A.26A)	—
	– air holes closed	No such holes	N/A
	– fans stopped	No such fans	N/A
	– coolant stopped		N/A
	– loss of cooling liquid		N/A
4.4.2.11	Heating devices	No such devices	N/A
	– timer overridden		N/A
	– temperature controller overridden		N/A
4.4.2.12	Insulation between circuits and parts		P
4.4.2.13	Interlocks	No interlocks	N/A
4.4.2.14	Voltage selectors	No such devices	N/A
4.4.3	Duration of tests	(see Form A.1)	—
4.4.4	Conformity after application of fault conditions	(see Form A.1; A.6, A.18)	P

5	MARKING AND DOCUMENTATION		P
5.1.1	Required equipment markings		—
	– visible from the exterior; or		P
	– visible after removing cover or opening door		P

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Clause	Requirement — Test	Result — Remark	Verdict
	– visible after removal from a rack or panel		P
	Not put on parts which can be removed by an operator		P
	Letter symbols (IEC 60027) used		P
	Graphic symbols (IEC 61010-1: Table 1) used		P
5.1.2	Identification		P
	Equipment is identified by:		—
	a) Manufacturer's or supplier's name or trademark	See page 3	P
	b) Model number, name or other means	See page 3	P
	Manufacturing location identified	Only one manufacturing location	N/A
5.1.3	MAINS supply		P
	Equipment is marked as follows:		—
	a) Nature of supply:		—
	1) a.c. RATED MAINS frequency or range of frequencies.....	See page 3	—
	2) d.c. with symbol 1		—
	b) RATED supply voltage(s) or range.....	See page 3	—
	c) Max. RATED power (W or VA) or input current	See page 3	—
	The marked value not less than 90 % of the maximum value	(see Form A.2)	P
	If more than one voltage range:	Only one range	—
	Separate values marked; or		N/A
	Values differ by less than 20 %	(see Form A.2)	N/A
	d) OPERATOR-set for different RATED supply voltages:	No operator-set device.	—
	Indicates the equipment set voltage		N/A
	Portable equipment indication is visible from the exterior		N/A
	Changing the setting changes the indication		N/A
	e) Accessory MAINS socket-outlets accepting standard MAINS plugs are marked:	No accessory mains socket-outlets.	—
	With the voltage if it is different from the MAINS supply		—
	For use only with specific equipment		N/A
	If not marked for specific equipment it is marked with:		—
	The maximum rated current or power; or		N/A
	Symbol 14 with full details in the documentation		N/A
5.1.4	Fuses		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	Operator replaceable fuse marking (see also 5.4.5)	Non-replaceable fuse	—
5.1.5	TERMINALS, connections and operating devices		P
5.1.5.1	General		—
	Where necessary for safety, indication of purpose of TERMINALS, connectors, controls and indicators marked	Symbol 11, 12 and 14 used.	P
	If insufficient space, symbol 14 used		N/A
	Push-buttons and actuators of emergency stop devices and indicators:		—
	– used only to indicate a warning of danger; or		N/A
	– the need for urgent action		N/A
	– coloured red		N/A
	– coded as specified in IEC 60073		N/A
	Supplementary means of coding provided, if meaning of colour relates (see IEC 60073):		—
	– to safety of persons; or		N/A
	– safety of the environment		N/A
5.1.5.2	TERMINALS		—
	MAINS supply TERMINAL identified	“L1”, “L2”, “L3” and “N” marked besides power input terminal.	P
	Other TERMINAL marking:		—
	a) FUNCTIONAL EARTH TERMINALS (symbol 5 used)		N/A
	b) PROTECTIVE CONDUCTOR TERMINALS:		—
	Symbol 6 is placed close to or on the TERMINAL; or		N/A
	Part of appliance inlet		N/A
	c) TERMINALS of control circuits (symbol 7 used)		N/A
	d) HAZARDOUS LIVE TERMINALS supplied from the interior		N/A
	Standard MAINS socket outlet; or		N/A
	RATINGS marked; or		N/A
	Symbol 14 used		N/A
5.1.6	Switches and circuit breakers	No such switches or circuit breakers.	N/A
	If disconnecting device, off position clearly marked		N/A
	If push-button used as power supply switch:		—
	– symbol 9 and 15 used for on-position		N/A
	– symbol 10 and 16 used for off-position		N/A
	– pair of symbols 9, 15 and 10, 16 close together		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
5.1.7	Equipment protected by DOUBLE INSULATION or REINFORCED INSULATION		P
	Protected throughout (symbol 11 used)	<input type="checkbox"/>	P
	Only partially protected (symbol 11 not used)		N/A
5.1.8	Field-wiring TERMINAL boxes		P
	If TERMINAL or ENCLOSURE exceeds 60 °C:	(see Form A.26A)	—
	Cable temperature RATING marked.....		—
	Marking visible before and during connection or beside TERMINAL		N/A
5.2	Warning markings	 <p>Symbol  and  with warning words marked on label.</p>	P
	Visible when ready for NORMAL USE	Visible	P
	Are near or on applicable parts	Near terminals	P
	Symbols and text correct dimensions and colour:		—
	a) symbols min 2,75 mm and text 1,5 mm high and contrasting in colour with background	Symbol is 2.75mm high with yellow background	P
	b) symbols and text moulded, stamped or engraved in material min. 2,0 mm high and		N/A
	0,5 mm depth or raised if not contrasting in colour		N/A
	If necessary marked with symbol 14		N/A
	Statement to isolate or disconnect if access by using a tool to HAZARDOUS LIVE parts is permitted		N/A
5.3	Durability of markings		P
	The required markings remain clear and legible in NORMAL USE	(see Form A.3)	P
5.4	Documentation	User manual provided	P
5.4.1	General		P
	Equipment is accompanied by documentation for safety purposes for OPERATOR or RESPONSIBLE BODY	User manual provided	P
	Safety documentation for service personnel authorized by the manufacturer	Contained in user manual	P
	Documentation necessary for safe operation is provided in printed media or	Documentation in printed media provide in the packaging.	P
	in electronic media if available at any time		N/A
	Documentation includes:	User manual	—
	a) intended use	Included in user manual	P
	b) technical specification	Contained	P
	c) name and address of manufacturer or supplier	Contained	P

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Clause	Requirement — Test	Result — Remark	Verdict
	d) information specified in 5.4.2 to 5.4.6	Contained	P
	e) information to mitigate residual RISK (see also subclause 17)	RISK ASSESSMENT provided.	P
	f) accessories for safe operation of the equipment specified	Current transformers to be used mentioned in user manual.	P
	g) guidance provided to check correct function of the equipment, if incorrect reading may cause a HAZARD from harmful or corrosive substances of HAZARDOUS live parts	Guidance provide in user manual.	P
	h) instructions for lifting and carrying		P
	Warning statements and a clear explanation of warning symbols:		—
	– provided in the documentation; or	Explanations of warning markings are both contained in user manual and marked near symbol.	P
	– information is marked on the equipment	See above	P
5.4.2	Equipment ratings		P
	Documentation includes:		—
	a) Supply voltage or voltage range	See page 3	—
	Frequency or frequency range.....	See page 3	—
	Power or current rating	See page 3	—
	b) Description of all input and output connections in accordance to 6.6.1 a)	RS485 port, DI port, DO port	P
	c) RATING of insulation of external circuits in accordance to 6.6.1 b)	Reinforced insulated from hazard live for current measuring terminal	N/A
	d) Statement of the range of environmental conditions (see 1.4)	Indoor use Temperature -25 °C to 55°C Relative humidity ≤95% Main supply voltage fluctuations up to ±10% of the nominal voltage. Rated pollution degree II, altitude below 2000 meters	P
	e) Degree of protection (IEC 60529)	IPX0 declared by the manufacture	P
	f) If impact rating less than 5 J:		—
	IK code in accordance to IEC 62262 marked; or		N/A
	symbol 14 of table 1 marked, with		N/A
	RATED energy level and test method stated		N/A
5.4.3	Equipment installation	User manual provided	P
	Documentation includes instructions for:		—

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Clause	Requirement — Test	Result — Remark	Verdict
	a) assembly, location and mounting requirements	Refer to user manual	P
	b) protective earthing	Class II equipment	N/A
	c) connections to supply	Wiring terminal used.	P
	d) PERMANENTLY CONNECTED EQUIPMENT:		—
	1) Supply wiring requirements		P
	2) If external switch or circuit-breaker, requirements and location recommendation		N/A
	e) ventilation requirements		P
	f) special services (e. g. air, cooling liquid)	Refer to user manual	P
	g) instructions relating to sound level		N/A
5.4.4	Equipment operation	User manual provided	P
	Instructions for use include:	Refer to user manual	—
	a) identification and description of operating controls		P
	b) positioning for disconnection		P
	c) instructions for interconnection		P
	d) specification of intermittent operation limits		N/A
	e) explanation of symbols used		P
	f) replacement of consumable materials		N/A
	g) cleaning and decontamination		P
	h) listing of any poisonous or injurious gases and quantities		N/A
	i) RISK reduction procedures relating to flammable liquids (see 9.5)	No flammable liquids used in equipment	N/A
	j) RISK reduction procedures relating burn from surfaces permitted to exceed limits of 10.1		N/A
	Additional precautions for IEC 60950 conforming equipment in regard to moistures and liquids		N/A
	A statement about protection impairment if used in a manner not specified by the manufacturer		P
5.4.5	Equipment maintenance and Service	User manual provided	P
	Instructions for RESPONSIBLE BODY include:		—
	Instructions sufficient in detail permitting safe maintenance and inspection and continued safety:		—
	Instruction against the use of detachable MAINS supply cord with inadequate rating		N/A
	Specific battery type of user replaceable batteries		N/A
	Any manufacturer specified parts		P
	Rating and characteristics of fuses		P
	Instructions include following subjects permitting safe servicing and continued safety:		—

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Clause	Requirement — Test	Result — Remark	Verdict
	a) product specific RISKS may affect service personnel		N/A
	b) protective measures for these RISKS		N/A
	c) verification of the safe state after repair		N/A
5.4.6	Integration into systems or effects resulting from special conditions		N/A
	Aspects described in documentation		N/A

6	PROTECTION AGAINST ELECTRIC SHOCK		P
6.1	General	(see Form A.14 and A.15)	P
6.1.1	Requirements		P
	Protection against electric shock maintained in NORMAL CONDITION and SINGLE FAULT CONDITION	See clause 6.4 and 6.5	P
	ACCESSIBLE parts not HAZARDOUS LIVE	See clause 6.2	P
	Voltage, current, charge or energy below the limits in NORMAL CONDITION and in SINGLE FAULT CONDITION between:		—
	ACCESSIBLE parts and earth		P
	two ACCESSIBLE parts on same piece of the equipment within a distance of 1,8 m		N/A
	Conformity is checked by the determination of 6.2 and 6.3 followed by the tests of 6.4 to 6.11	Checked, see 6.2 and 6.3	P
6.1.2	Exceptions		N/A
	Following HAZARDOUS LIVE parts may be ACCESSIBLE to an OPERATOR:		—
	a) parts of lamps and lamp sockets after lamp removal		N/A
	b) parts to be replaced by OPERATOR only by the use of tool and warning marking		N/A
	Those parts not HAZARDOUS LIVE 10 s after interruption of supply	(see Form A.5)	N/A
	Capacitance test if charge is received from internal capacitor	(see Form A.4 and A.5)	N/A
6.2	Determination of ACCESSIBLE parts	(see Form A.4)	P
6.2.1	General		P
	Unless obviously determination of ACCESSIBLE parts as specified in 6.2.2 to 6.2.4		P
6.2.2	Examination		P
	– with jointed test finger (as specified B.2)		P
	– with rigid test finger (as specified B.1) and a force of 10 N		P
6.2.3	Openings above parts that are HAZARDOUS LIVE	No openings	N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	– test pin with length of 100 mm and 4 mm in diameter applied		N/A
6.2.4	Openings for pre-set controls	No such controls	N/A
	– test pin with length of 100 mm and 3 mm in diameter applied		N/A
6.3	Limit values for ACCESSIBLE parts		P
6.3.1	Levels in NORMAL CONDITION	(see Form A.5)	—
	a) Voltage limits less than 33 V r.m.s. and 46,7 V peak or 70 V d.c.		P
	for WET LOCATIONS voltage limits less than 16 V r.m.s. and 22,6 V peak or 35 V d.c.		N/A
	Voltages are not HAZARDOUS LIVE the levels of:		—
	b) Current less than 0,5 mA r.m.s. for sinusoidal, 0,7 mA peak non-sinusoidal or mixed frequencies or 2 mA d.c. when measured with measuring circuit A.1 or A.2 if less than 100 Hz		N/A
	for WET LOCATIONS measuring circuit A.4 used		N/A
	70 mA r.m.s. when measured with circuit A.3 for higher frequencies		N/A
	or		—
	c) Levels of capacitive charge or energy less:		—
	1) 45 μ C for voltages up to 15 kV peak or d.c. or line A of Figure 3		N/A
	2) 350 mJ stored energy for voltages above 15 kV peak or d.c.		N/A
6.3.2	Levels in SINGLE FAULT CONDITION	(see Form A.6)	—
	a) Voltage limits less than 55 V r.m.s. and 78 V peak or 140 V d.c.		P
	for WET LOCATIONS voltage limits less than 33 V r.m.s. and 46,7 V peak or 70 V d.c.		N/A
	Voltages are not HAZARDOUS LIVE the levels of:		—
	b) Current less than 3,5 mA r.m.s. for sinusoidal, 5 mA peak non-sinusoidal or mixed frequencies or 15 mA d.c. when measured with measuring circuit A.1 or A.2 if less than 100 Hz		N/A
	for WET LOCATIONS measuring circuit A.4 used		N/A
	500 mA r.m.s. when measured with circuit A.3 for higher frequencies		N/A
	or		—
	c) Levels of capacitive charge or energy less line B of Figure 3		N/A
6.4	Primary means of protection		P

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Clause	Requirement — Test	Result — Remark	Verdict
6.4.1	ACCESSIBLE parts prevented from being HAZARDOUS LIVE by one or more of following means:		—
	a) ENCLOSURES or PROTECTIVE BARRIERS (see 6.4.2)		P
	b) BASIC INSULATION (see 6.4.3)		P
	c) Impedance (see 6.4.4)		P
6.4.2	ENCLOSURES or PROTECTIVE BARRIERS	(see Form A.15 and A.16)	—
	– meet rigidity requirements of 8.1		P
	– meet requirements for BASIC INSULATION, if protection is provided by insulation		P
	– meet requirements of 6.7 for CREEPAGE and – CLEARANCES between ACCESSIBLE parts and – HAZARDOUS live parts, if protection is provided by – limited access		P
6.4.3	BASIC INSULATION	(see Form A.15 and A.16)	—
	– meet CLEARANCE, CREEPAGE DISTANCE and solid – insulation requirements of 6.7		P
6.4.4	Impedance	(see Form A.12 and A.15)	—
	Impedance used as primary means of protection meets all of following requirements:		—
	a) limits current or voltage to level of 6.3.2	(see Form A.6)	P
	b) RATED for maximum WORKING VOLTAGE and the amount of power it will dissipate		P
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of BASIC INSULATION of 6.7	(see Form A.15)	P
6.5	Additional means of protection in case of SINGLE FAULT CONDITION		P
6.5.1	ACCESSIBLE parts are prevented from becoming HAZARDOUS live by the primary means of protection and supplemented by one of:	As below	—
	a) PROTECTIVE BONDING (see 6.5.2)		N/A
	b) SUPPLEMENTARY INSULATION (see 6.5.3)		P
	c) automatic disconnection of the supply (see 6.5.5)		N/A
	d) current- or voltage-limiting device (see 6.5.6)		N/A
	Alternatively one of the single means of protection is used:		—
	e) REINFORCED INSULATION (see 6.5.3)		P
	f) PROTECTIVE IMPEDANCE (see 6.5.4)		P
6.5.2	PROTECTIVE BONDING	(see Form A.7, A.8, A.9, A.10 or A.11)	N/A
6.5.2.1	ACCESSIBLE conductive parts, may become HAZARDOUS LIVE in SINGLE FAULT CONDITION:	Class II equipment	—
	Bonded to the PROTECTIVE CONDUCTOR TERMINAL; or		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	Separated by conductive screen or barrier bonded to PROTECTIVE CONDUCTOR TERMINAL		N/A
6.5.2.2	Integrity of PROTECTIVE BONDING		—
	a) PROTECTIVE BONDING consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses		N/A
	b) Soldered connections:		—
	Independently secured against loosening		N/A
	Not used for other purposes		N/A
	c) Screw connections are secured		N/A
	d) PROTECTIVE BONDING not interrupted; or		N/A
	exempted as removable part carries MAINS SUPPLY input connection		N/A
	e) Any movable PROTECTIVE BONDING connection specifically designed, and meets 6.5.2.4		N/A
	f) No external metal braid of cables used (not regarded as PROTECTIVE BONDING)		N/A
	g) IF MAINS SUPPLY passes through:		—
	Means provided for passing protective conductor;		N/A
	Impedance meets 6.5.2.4		N/A
	h) Protective conductors bare or insulated, if insulated, green/yellow		N/A
	Exceptions:		—
	1) earthing braids;		N/A
	2) internal protective conductors etc.;		N/A
	Green/yellow not used for other purposes		N/A
	TERMINAL suitable for connection of a PROTECTIVE CONDUCTOR, and meets 6.5.2.3		N/A
6.5.2.3	PROTECTIVE CONDUCTOR TERMINAL		—
	a) Contact surfaces are metal		N/A
	b) Appliance inlet used		N/A
	c) For rewirable cords and PERMANENTLY CONNECTED EQUIPMENT, PROTECTIVE CONDUCTOR TERMINAL is close to MAINS supply TERMINALS		N/A
	d) If no MAINS supply is required, any PROTECTIVE CONDUCTOR TERMINAL:		—
	Is near terminals of circuit for which protective earthing is necessary		N/A
	External if other terminals external		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	e) Equivalent current-carrying capacity to MAINS supply TERMINALS	(see Form A.7)	N/A
	f) If plug-in, makes first and breaks last		N/A
	g) If also used for other bonding purposes, PROTECTIVE CONDUCTOR:		—
	Applied first;		N/A
	Secured independently;		N/A
	Unlikely to be removed by servicing		N/A
	h) PROTECTIVE CONDUCTOR of measuring circuit:		—
	1) Current RATING equivalent to measuring circuit TERMINAL;		N/A
	2) PROTECTIVE BONDING: not interrupted by any switch or interrupting device		N/A
	i) FUNCTIONAL EARTH TERMINALS allow independent connection		N/A
	j) If a binding screw used for PROTECTIVE CONDUCTOR TERMINAL:		—
	Suitable size for bond wire		N/A
	Not smaller than M 4		N/A
	At least 3 turns of screw engaged		N/A
	Passes tightening torque test	(see Form A.8)	N/A
	k) Contact pressure not capable being reduced by deformation of materials		N/A
6.5.2.4	Impedance of PROTECTIVE BONDING of plug-connected equipment	(see Form A.9)	—
	Impedance between PROTECTIVE CONDUCTOR TERMINAL and each ACCESSIBLE part where PROTECTIVE BONDING is specified, is:		—
	– less than 0,1 Ohm; or		N/A
	– less than 0,2 Ohm if equipment is provided with non-detachable cord		N/A
6.5.2.5	Bonding impedance of PERMANENTLY CONNECTED EQUIPMENT	(see Form A.10)	—
6.5.2.6	Transformer PROTECTIVE BONDING screen	(see Form A.11)	—
	Transformer provided with screen for PROTECTIVE BONDING:		—
	screen bonding consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses (see 6.5.2.2 a)		N/A
	screen bonding with soldered connection (see 6.5.2.2 b) is:		N/A
	– Independently secured against loosening		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	– Not used for other purposes		N/A
6.5.3	SUPPLEMENTARY and REINFORCED INSULATION		P
	Meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7		P
6.5.4	PROTECTIVE IMPEDANCE	(see Form A.12)	N/A
	Limits current or voltage to level of 6.3.1 in NORMAL and to level of 6.3.2 in SINGLE FAULT CONDITION		N/A
	CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of DOUBLE or REINFORCED INSULATION of 6.7	(see Form A.15)	N/A
	The PROTECTIVE IMPEDANCE consists of one or more of the following:	(see TABLE 1 and Form A.12)	—
	a) appropriate single component suitable for safety and reliability for protection, it is:		—
	1) RATED twice the maximum WORKING VOLTAGE		N/A
	2) resistor RATED for twice the power dissipation for maximum WORKING VOLTAGE		N/A
	b) combination of components		P
	Single electronic device not used as PROTECTIVE IMPEDANCE		P
6.5.5	Automatic disconnection of the supply		N/A
	a) RATED to disconnect the load within time specified in Figure 2		N/A
	b) RATED for the maximum load conditions of the equipment		N/A
6.5.6	Current- or voltage-limiting devices	(see Form A.12)	N/A
	Device complies with all of:		—
	a) RATED to limit the current or voltage to the level of 6.3.2	(see Form A.6)	N/A
	b) RATED for the maximum WORKING VOLTAGE; and		N/A
	RATED for the maximum operational current if applicable		N/A
	c) CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of SUPPLEMENTARY INSULATION of 6.7	(see Form A.14, A.15)	N/A
6.6	Connections to external circuits		P
6.6.1	Connections do not cause ACCESSIBLE parts of the following to become HAZARDOUS LIVE in NORMAL CONDITION or SINGLE FAULT CONDITION:		—
	– the external circuits		P
	– the equipment		P
	Protection achieved by separation of circuits; or		P
	short circuit of separation does not cause a HAZARD		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	Instructions or markings for each terminal include:		—
	a) RATED conditions for TERMINAL		P
	b) Required RATING of external circuit insulation		P
6.6.2	TERMINALS for external circuits		N/A
	TERMINALS which receive a charge from an internal capacitor are not HAZARDOUS LIVE after 10 s of interrupting supply connection	(see Form A.5)	N/A
6.6.3	Circuits with terminals which are HAZARDOUS LIVE	No such terminals	N/A
	These circuits are:		—
	Not connected to ACCESSIBLE conductive parts; or		N/A
	Connected to ACCESSIBLE conductive parts, but are not MAINS CIRCUITS and have one TERMINAL contact at earth potential		N/A
	No ACCESSIBLE conductive parts are HAZARDOUS LIVE		N/A
6.6.4	ACCESSIBLE terminals for stranded conductors		N/A
	No RISK of accidental contact because:		—
	– Located or shielded		N/A
	– Self-evident or marked whether or not connected to ACCESSIBLE conductive parts		N/A
	ACCESSIBLE TERMINALS will not work loose		N/A
6.7	Insulation requirements		P
6.7.1	The nature of insulation		—
6.7.1.1	Insulation between ACCESSIBLE parts or between separate circuits consist of CLEARANCES, CREEPAGE DISTANCES and solid insulation if provided as protection against a HAZARD		P
6.7.1.2	CLEARANCES		—
	Required CLEARANCES reflecting factors of 6.7.1.1	(see Form A.14 and A.15)	P
	Equipment rated for operating altitude greater than 2000 m correction factor of Table 3 of 61010-1 applied		N/A
6.7.1.3	CREEPAGE DISTANCES		—
	Required CREEPAGE DISTANCES reflecting factors of 6.7.1.1 a) to d)	(see Form A.14 and A.15)	P
	CTI material group reflected by requirements	IIIb	P
	CTI test performed		N/A
6.7.1.4	Solid insulation		—
	Required solid insulation reflecting factors of 6.7.1.1 a) to d)	(see Form A.14 and A.15)	P
6.7.1.5	Requirements for insulation according to type of circuit	(see Form A.14 and A.15)	—

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Clause	Requirement — Test	Result — Remark	Verdict
	a) 6.7.2 MAINS circuits of OVERVOLTAGE CATEGORY II up to nominal supply voltage of 300 V		N/A
	b) 6.7.3 secondary circuits separated from circuits defined in a) by transformer		N/A
	c) K.1 MAINS circuits of OVERVOLTAGE CATEGORY III and IV or OVERVOLTAGE CATEGORY II over 300 V	Overvoltage category III considered	P
	d) K.2 secondary circuits separated from circuits defined in c) by transformer		N/A
	e) K.3 circuits having one or more of:		—
	1) maximum TRANSIENT OVERVOLTAGE is limited to known level below the level of MAINS CIRCUIT		N/A
	2) maximum TRANSIENT OVERVOLTAGE above the level of MAINS CIRCUIT		N/A
	3) WORKING VOLTAGE is the sum of more than one circuit or a mixed voltage		N/A
	4) WORKING VOLTAGE includes recurring peak voltage, may include non-sinusoidal or non-periodic waveform		N/A
	5) WORKING VOLTAGE with a frequency above 30 kHz		N/A
6.7.2	Insulation for MAINS CIRCUITS of OVERVOLTAGE CATEGORY II with a nominal supply voltage up to 300 V		N/A
6.7.2.1	CLEARANCES and CREEPAGE DISTANCES	(see Form A.14 and A.15)	—
	Values for MAINS CIRCUITS of Table 4 are met		N/A
	Coatings to achieve reduction to POLLUTION DEGREE 1 comply with requirements of Annex H		N/A
6.7.2.2	Solid insulation		—
6.7.2.2.1	Withstands electrical and mechanical stresses in normal use and all RATED environmental conditions of 1.4		N/A
	Equipment passed voltage tests of 6.8.3 with values of Table 5	(see Form A.18)	N/A
	Complies as applicable:		—
	a) ENCLOSURE or PROTECTIVE BARRIER of Clause 8		N/A
	b) moulded and potted parts requirements of 6.7.2.2.2		N/A
	c) inner layers of printed wiring boards requirements of 6.7.2.2.3		N/A
	d) thin-film insulation requirements of 6.7.2.2.4		N/A
6.7.2.2.2	Moulded and potted parts		—
	Conductors between same two layers are separated by at least 0,4 mm after moulding is completed		N/A
6.7.2.2.3	Inner insulating layers of printed wiring boards		—

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Clause	Requirement — Test	Result — Remark	Verdict
	Separated by at least 0,4 mm between same two layers		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		—
	a) thickness of insulation is at least 0,4 mm		N/A
	b) insulation is assembled of minimum two separate layers, each RATED for test voltage of Table 5 for BASIC INSULATION		N/A
	c) insulation is assembled of minimum two separate layers, where the combination is rated for test voltage of Table 5 for REINFORCED INSULATION		N/A
6.7.2.2.4	Thin-film insulation		—
	Conductors between same two layers are separated by applicable CLEARANCES and CREEPAGE DISTANCE of 6.7.2.1		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		—
	a) thickness through the insulation at least 0,4 mm		N/A
	b) insulation is assembled of min two separate layers, each RATED for test voltage of Table 5 for BASIC INSULATION		N/A
	c) insulation is assembled of min three separate layers, where the combination of two layers passed voltage tests of 6.8.3 with values of Table 5 for REINFORCED INSULATION	(see Form A.18)	N/A
6.7.3	Insulation for secondary circuits derived from MAINS CIRCUITS of OVERVOLTAGE CATEGORY II up to 300 V		N/A
6.7.3.1	Secondary circuits where separation from MAINS CIRCUITS is achieved by a transformer providing:		—
	– REINFORCED INSULATION		N/A
	– DOUBLE INSULATION		N/A
	– screen connected to the PROTECTIVE CONDUCTOR TERMINAL		N/A
6.7.3.2	CLEARANCES		—
	a) meet the values of Table 6 for BASIC INSULATION and SUPPLEMENTARY INSULATION; or		N/A
	twice the values of Table 6 for REINFORCED INSULATION		N/A
	or		—
	b) pass the voltage tests of 6.8 with values of Table 6;	(see Form A.18)	—
	with following adjustments:		—
	1) values for reinforced insulation are 1,6 times the values for basic insulation		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	2) if operating altitude is greater than 2000 m values of CLEARANCES multiplied with factor of Table 3		N/A
	3) minimum CLEARANCE is 0,2 mm for POLLUTION DEGREE 2 and 0,8 mm for POLLUTION DEGREE 3		N/A
6.7.3.3	CREEPAGE DISTANCES		—
	Based on WORKING VOLTAGE meets the values of Table 7 for BASIC and SUPPLEMENTARY INSULATION		N/A
	Values for REINFORCED INSULATION are twice the values of BASIC INSULATION		N/A
	Coatings to achieve reduction to POLLUTION DEGREE 1 comply with requirements of Annex H		N/A
6.7.3.4	Solid insulation		—
6.7.3.4.1	Withstands electrical and mechanical stresses in normal use and all RATED environmental conditions of 1.4		—
	a) Equipment passed voltage test of 6.8.3.1 for 5 s with VALUES of Table 6 for BASIC and SUPPLEMENTARY INSULATION	(see Form A.18)	N/A
	values for REINFORCED INSULATION are 1,6 times the values of BASIC INSULATION		N/A
	b) if WORKING VOLTAGE exceeds 300 V, equipment passed voltage test of 6.8.3.1 for 1 min with a test voltage of 1,5 times working voltage for BASIC or SUPPLEMENTARY INSULATION	(see Form A.18)	N/A
	value for REINFORCED INSULATION are twice the WORKING VOLTAGE		N/A
	Complies as applicable:		—
	1) ENCLOSURE or PROTECTIVE BARRIER of Clause 8		N/A
	2) moulded and potted parts requirements of 6.7.3.4.2		N/A
	3) inner layers of printed wiring boards requirements of 6.7.3.4.3		N/A
	4) thin-film insulation requirements of 6.7.3.4.4		N/A
6.7.3.4.2	Moulded and potted parts		—
	Conductors between same two layers are separated by applicable distances of Table 8		N/A
6.7.3.4.3	Inner insulation layers of printed wiring boards		—
	Separated by at least by applicable distances of Table 8 between same two layers		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		—
	a) thickness at least applicable distance of Table 8		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	b) insulation is assembled of minimum two separate layers, each RATED for test voltage of Table 6 for BASIC INSULATION		N/A
	c) insulation is assembled of min two separate layers, where the combination is RATED for 1,6 times the test voltage of Table 6		N/A
6.7.3.4.4	Thin-film insulation		—
	Conductors between same two layers are separated by applicable CLEARANCES and CREEPAGE DISTANCE of 6.7.3.2 and 6.7.3.3		N/A
	REINFORCED INSULATION have adequate electric strength; one of following methods used:		—
	a) thickness at least applicable distance of Table 8		N/A
	b) insulation is assembled of min. two separate layers, each RATED for test voltage of Table 6 for BASIC INSULATION		N/A
	c) insulation is assembled of min. three separate layers, where the combination of two layers passed voltage tests with 1,6 time values of Table 6:	(see Form A.18)	—
	a.c. test of 6.8.3.1; or		N/A
	d.c. test of 6.8.3.2 for circuits stressed only by d.c. voltages		N/A
6.8	Procedure for dielectric strength tests	(see Form A.14 and A.18)	P
6.9	Constructional requirements for protection against electric shock		P
6.9.1	If a failure could cause a HAZARD:		—
	a) security of wiring connections	Internal wiring did not subject to mechanical stresses	N/A
	b) screws securing removable covers	Screws used not influence the clearance and creepage distance	N/A
	c) accidental loosening	No hazard caused by loosening of wire	P
	d) CLEARANCES and CREEPAGE DISTANCES not reduced below the values of basic insulation by loosening of parts or wires	No loosening of wire	P
6.9.2	Insulating materials		P
	Material not to be used for safety relevant insulation:		—
	a) easily damaged materials not used	Not used	P
	b) non-impregnated hygroscopic materials not used	Not used	P
6.9.3	Colour coding		P
	Green-and-yellow insulation shall not be used except:		—

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Clause	Requirement — Test	Result — Remark	Verdict
	a) protective earth conductors;		N/A
	b) PROTECTIVE BONDING conductors;		N/A
	c) potential equalization conductors;		N/A
	d) functional earth conductors		N/A
6.10	Connection to MAINS supply source and connections between parts of equipment	Wiring terminal used	P
6.10.1	MAINS supply cords		—
	RATED for maximum equipment current (see 5.1.3 c)		N/A
	Cable complies with IEC 60227 or IEC 60245		N/A
	Heat-resistant if likely to contact hot parts		N/A
	Temperature RATING (cord and inlet)		—
	Green/yellow used only for connection to PROTECTIVE CONDUCTOR TERMINALS		N/A
	Detachable cords with IEC 60320 MAINS connectors:		—
	Conform to IEC 60799; or		N/A
	Have the current RATING of the MAINS connector		N/A
6.10.2	Fitting of non-detachable MAINS supply cords		—
6.10.2.1	Cord entry		—
	a) inlet or bushing with a smoothly rounded opening; or		N/A
	b) insulated cord guard protruding >5 D (diameter)		N/A
6.10.2.2	Cord anchorage		—
	Protective earth conductor is the last to take the strain		N/A
	a) cord is not clamped by direct pressure from a screw		N/A
	b) knots are not used		N/A
	c) cannot push the cord into the equipment to cause a HAZARD		N/A
	d) no failure of cord insulation in anchorage with metal parts		N/A
	e) not to be loosened without a tool		N/A
	f) cord replacement does not cause a HAZARD and method of strain relief is clear		N/A
	Push-pull and or torque test	(see Form A.19)	N/A
6.10.3	Plugs and connectors		N/A
	MAINS supply plugs, connectors etc., conform with relevant specifications		N/A
	If equipment supplied at voltages below 6.3.2.a) or from a sole source:		—

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Clause	Requirement — Test	Result — Remark	Verdict
	Plugs of supply cords do not fit MAINS sockets above rated SUPPLY voltage		N/A
	MAINS type plugs used only for connection to MAINS supply		N/A
	Plug pins which receive a charge from an internal capacitor	(see Form A.5)	N/A
	Accessory MAINS socket outlets:		—
	a) marking if accepts a standard MAINS supply plug (see 5.1.3e)		N/A
	b) input has a protective earth conductor if outlet has EARTH TERMINAL CONTACT		N/A
6.11	Disconnection from supply source	As below	P
6.11.1	Disconnects all current-carrying conductors	External circuit breaker used.	P
6.11.2	Exceptions		N/A
6.11.3	Requirements according to type of equipment	Multi-phase equipment	—
6.11.3.1	PERMANENTLY CONNECTED EQUIPMENT and multi-phase equipment	Multi-phase equipment	P
	Employs switch or circuit-breaker	External circuit-breaker	P
	If switch or circuit-breaker is not part of the equipment, documentation requires:	Documentation contained in user manual.	—
	a) switch or circuit-breaker to be included in building installation	External circuit-breaker used	P
	b) suitable location easily reached	Refer to user manual	P
	c) marking as disconnecting for the equipment	Refer to user manual	P
6.11.3.2	Single-phase cord-connected equipment		N/A
	Equipment is provided with one of the following:		—
	a) switch or circuit-breaker		N/A
	b) appliance coupler (disconnectable without tool)		N/A
	c) separable plug (without locking device)		N/A
6.11.4	Disconnecting devices	Permanently connected equipment	N/A
6.11.4.1	Disconnecting device part of equipment		N/A
	Electrically close to the SUPPLY		N/A
	Power-consuming components not electrically located between the supply source and the disconnecting device		N/A
	Except electromagnetic interference suppression circuits permitted to be located on the supply side of the disconnecting device		N/A
6.11.4.2	Switches and circuit-breakers		N/A
	When used as disconnection device:	Not used as disconnection device.	—

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Clause	Requirement — Test	Result — Remark	Verdict
	Meets IEC 60947-1 and IEC 60947-3		N/A
	Marked to indicate function		—
	Not incorporated in MAINS cord		N/A
	Does not interrupt PROTECTIVE EARTH CONDUCTOR		N/A
6.11.4.3	Appliance couplers and plugs		N/A
	Where an appliance coupler or separable plug is used as the disconnecting device (see 6.11.3.2):		—
	Readily identifiable and easily reached by the operator		N/A
	Single-phase portable equipment cord length not more than 3 m		N/A
	PROTECTIVE EARTH CONDUCTOR connected first and disconnected last		N/A

7	PROTECTION AGAINST MECHANICAL HAZARDS		N/A
7.1	Equipment does not cause a mechanical HAZARD in NORMAL nor in SINGLE FAULT CONDITION	Built-in equipment, considered in the end system.	N/A
	Conformity is checked by 7.2 to 7.7		N/A
7.2	Sharp edges		N/A
	Easily touched parts are smooth and rounded		N/A
	Do not cause injury during NORMAL USE and		N/A
	Do not cause injury during SINGLE FAULT CONDITION		N/A
7.3	Moving parts		N/A
7.3.1	HAZARDS from moving parts limited to a tolerable level with the conditions specified in 7.3.2 and 7.3.5		N/A
	RISK assessment in accordance with 7.3.3 carried out		N/A
7.3.2	Exceptions		N/A
	Access to HAZARDOUS moving parts permitted under following circumstances:		—
	a) obviously intended to operate on parts or materials external of the equipment		N/A
	inadvertent touching of moving parts minimized by equipment design (e.g. guards or handles)		N/A
	b) If OPERATOR access is unavoidable outside NORMAL USE following precautions have been taken:		—
	1) access requires TOOL		N/A
	2) statement about training in the instructions		N/A
	3) warning markings on covers prohibiting access by untrained OPERATORS		N/A
	or symbol 14 with full details in documentation		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
7.3.3	Risk assessment for mechanical HAZARDS to body parts		N/A
	Risk is reduced to a tolerable level by protective measures as specified in table 12		N/A
	Minimum protective measures:		—
	A. Low level measures		N/A
	B. Moderate measures		N/A
	C. Stringent measures		N/A
7.3.4	Limitation of force and pressure	(see Form A.20)	N/A
	Following levels are met in NORMAL and SINGLE FAULT CONDITION:		—
	Continuous contact pressure below 50 N / cm ² with force below 150 N		N/A
	Temporary force below 250 N for an area at least of 3 cm ² for a maximum duration of 0,75 s		N/A
7.3.5	Gap limitations between moving parts	(see Form A.20)	N/A
7.3.5.1	Access normally allowed		—
	If levels of 7.3.4 exceeded and body part may be inserted minimum gap as specified in table 13 assured in NORMAL and in SINGLE FAULT CONDITION		N/A
7.3.5.2	Access normally prevented		—
	Maximum gap as specified in table 14 assured in NORMAL and in SINGLE FAULT CONDITION		N/A
7.4	Stability		N/A
	Equipment not secured to building structure is physical stable		N/A
	Stability maintained after opening of drawers etc. by automatic means, or		N/A
	warning marking requires the application of means		N/A
	Compliance checked by following tests as applicable:		—
	a) 10° tilt test for other than handheld equipment		N/A
	b) multi-directional force test for equipment exceeds height of 1 m and mass of 25 kg		N/A
	c) downward force test for floor-standing equipment		N/A
	d) overload test with 4 times maximum load for castor or support that supports greatest load		N/A
	e) castor or support that supports greatest load removed from equipment		N/A
7.5	Provisions for lifting and carrying		N/A
7.5.1	Equipment more than 18 kg :		—
	Has means for lifting or carrying; or		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	Directions in documentation		N/A
7.5.2	Handles and grips		—
	Handles or grips withstand four times weight		N/A
7.5.3	Lifting devices and supporting parts		—
	RATED for maximum load; or		N/A
	tested with four times maximum static load		N/A
7.6	Wall mounting		N/A
	Mounting brackets withstand four times weight		N/A
7.7	Expelled parts		N/A
	Equipment contains or limits the energy		N/A
	Protection not removable without the aid of a tool		N/A

8	RESISTANCE TO MECHANICAL STRESSES		P
8.1	Equipment does not cause a HAZARD when subjected to mechanical stresses in NORMAL USE	Checked as below:	P
	Normal protection level is 5 J	5J considered	P
	Levels below 5 J but not less than 1 J are acceptable if all of following criteria are met:	5J considered	—
	a) lower level justified by RISK assessment of manufacturer		N/A
	b) equipment installed in its intended application is not easily touched		N/A
	c) only occasional access during NORMAL USE		N/A
	d) IK code in accordance to IEC 62262 marked or symbol 14 used with full information in the documentation		N/A
	for non-metallic ENCLOSURES rated below 2 °C ambient temperature value chosen for minimum RATED temperature		N/A
	impact energies between IK values, the IK code marked for nearest lower value		N/A
	Conformity is checked by performing following tests:		—
	1) static test of 8.2.1	Static test: 30N applied, no hazards.	P
	2) impact test of 8.2.2 with 5 J except for HAND-HELD EQUIPMENT	Complied.	P
	if impact energy not selected to 5 J alternate method of IEC 62262 used	5J selected.	N/A
	3) drop test of 8.3.1 or 8.3.2 except for FIXED EQUIPMENT and equipment with mass over 100 kg	Fixed equipment	N/A
	Equipment RATED with an impact rating of IK 08 that obviously meets the criteria		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	After the tests inspection with following results:		—
	– HAZARDOUS LIVE parts above the limits of 6.3.2 not ACCESSIBLE	No hazards live parts became accessible	P
	– insulation pass the voltage tests of 6.8	(see Form A.30)	P
	i) no leaks of corrosive and harmful substances	No such substances	N/A
	ii) ENCLOSURE shows no cracks resulting in a HAZARD	No cracks appeared	P
	iii) CLEARANCES not less than their permitted values	No change to clearances	P
	iv) insulation of internal wiring remains undamaged	Undamaged	P
	v) PROTECTIVE BARRIERS not damaged or loosened	No such barriers	N/A
	vi) No moving parts exposed, except permitted by 7.3	No moving parts	N/A
	vii) no damage which could cause spread of fire	No damaged.	P
8.2	ENCLOSURE rigidity test	As below	P
8.2.1	Static test	(see Form A.21A)	P
	– 30 N with 12 mm rod to each part of ENCLOSURE	Applied to front	P
	– in case of doubt test conducted at maximum RATED ambient temperature	Tested under 40°C	P
8.2.2	Impact test	(see Form A.21A)	P
	Impact applied to any part of ENCLOSURE causing a HAZARD if damaged	Applied to front	P
	Impact energy level and corresponding IK code	5J, IK08	—
	Non-metallic ENCLOSURES cooled to minimum RATED ambient temperature if below 2 °C		N/A
8.3	Drop test	(see Form A.21B)	N/A
8.3.1	Other than HAND-HELD and DIRECT-PLUG-IN EQUIPMENT		N/A
	Tests conducted with a drop height or angle of.....		—
8.3.2	HAND-HELD and DIRECT-PLUG-IN EQUIPMENT	Not hand-held or direct-plug-in equipment.	—
	Non-metallic ENCLOSURES cooled to minimum RATED ambient temperature if below 2 °C		N/A
	Drop test conducted with an height of 1 m		N/A

9	PROTECTION AGAINST THE SPREAD OF FIRE		P
9.1	No spread of fire in NORMAL and SINGLE FAULT CONDITION	No fire produced	P
	MAINS supplied equipment meets requirements of 9.6 additionally	See 9.6	P
	Conformity is checked by minimum one or a combination of the following (see Figure 11):	(see Form A.22)	—
	a) SINGLE FAULT test of 4.4; or	(see Form A.1)	P

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Clause	Requirement — Test	Result — Remark	Verdict
	b) Application of 9.2 (eliminating or reducing the sources of ignition); or		N/A
	c) Application of 9.3 (containment of fire within the equipment)		P
9.2	Eliminating or reducing the sources of ignition within the equipment		N/A
	a) 1) Limited-energy circuit (see 9.4); or		N/A
	b) 2) BASIC INSULATION provided for parts of different potential; or	(see Form A.14 and A.18)	N/A
	Bridging the insulation does not cause ignition	(see Form A.1)	N/A
	c) Surface temperature of liquids and parts (see 9.5)		N/A
	d) No ignition in circuits designed to produce heat	(see Form A.1)	N/A
9.3	Containment of the fire within the equipment, should it occur		P
9.3.1	Spread of fire outside equipment reduced to a tolerable level if:		—
	a) Energizing of the equipment is controlled by an OPERATOR held switch		N/A
	b) ENCLOSURE is conform with constructional requirements of 9.3.2; and	Material of plastic enclosure meet flammability of V-0	P
	Requirements of 9.5 are met	No flammable liquids used or contained in equipment	N/A
9.3.2	Constructional requirements		—
	a) Connectors and insulating material have flammability classification V-2 or better	(see TABLE 1 or Form A.23)	P
	b) Insulated wires and cables are flame retardant (VW-1 or equivalent)	(see TABLE 1 or Form A.23)	P
	c) ENCLOSURE meets following requirements:	(see Form A.22)	—
	1) Bottom and sides in arc of 5 ° (see Figure 13) to non-limited circuits (9.4) meets:		—
	i) no openings; or	No openings	P
	ii) perforated as specified in table 16; or		N/A
	iii) metal screen with a mesh; or		N/A
	iv) baffles as specified in Figure 12		N/A
	2) Material of ENCLOSURE and any baffle or flame barrier is made of:		—
	Metal (except magnesium); or		N/A
	Non-metallic materials have flammability classification V-1 or better	(see TABLE 1 or Form A.22)	P
	3) ENCLOSURE and any baffle or flame barrier have adequate rigidity	Adequate rigidity	P
9.4	Limited-energy circuit	(see Form A.24)	N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	a) Potential not more than 30 r.m.s. and 42,4 V peak, or 60 V dc		N/A
	b) Current limited by one of following means:		—
	1) Inherently or by impedance (see table 17); or		N/A
	2) Overcurrent protective device (see table 18); or		N/A
	3) A regulating network limits also in SINGLE FAULT CONDITION (see table 17)		N/A
	c) Is separated by at least BASIC INSULATION		N/A
	Fuse or a nonadjustable electromechanical device is used		N/A
9.5	Requirements for equipment containing or using flammable liquids		N/A
	Flammable liquids contained in or specified for use with equipment do not cause spread of fire	(see Form A.25)	N/A
	RISK is reduced to a tolerable level:		—
	a) The temperature of surface or parts in contact with flammable liquids is 25 °C below fire point		N/A
	b) The quantity of liquid is limited		N/A
	c) Flames are contained within the equipment		N/A
	Detailed instructions for RISK-reduction provided		N/A
9.6	Overcurrent protection		P
9.6.1	MAINS supplied equipment protected		P
	BASIC INSULATION between MAINS parts of opposite polarity provided	(see Form A.14 and A.15)	P
	Devices not in the protective conductor		P
	Fuses or single-pole circuit-breakers not fitted in neutral (multi-phase)		P
9.6.2	PERMANENTLY CONNECTED EQUIPMENT		P
	Overcurrent protection device:		—
	Fitted within the equipment; or	Base on the building installation	P
	Specified in manufacturer's instructions		N/A
9.6.3	Other equipment		—
	Protection within the equipment		P
10	EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT		P
10.1	Surface temperature limits for protection against burns	Surface temperature not exceeds the limits	P
	Easily touched surfaces within the limits in NORMAL and in SINGLE FAULT CONDITION:	(see Form A.26A)	—

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Clause	Requirement — Test	Result — Remark	Verdict
	– at an specified ambient temperature of 40 °C		N/A
	– for equipment rated above 40 °C ambient temperature limits not exceeded raised by the difference to 40 °C	55°C	P
	Heated surfaces necessary for functional reasons exceeding specified values:		—
	– Are recognizable as such by appearance or function; or		N/A
	– Are marked with symbol 13		N/A
	– Guards are not removable without tool		N/A
10.2	Temperatures of windings	Evaluated on mains transformer	P
	Limits not exceeded in:	(see Form A.26B)	—
	NORMAL CONDITION	(see Form A.26B)	P
	SINGLE FAULT CONDITION	(see Form A.26B)	P
10.3	Other temperature measurements		P
	Following measurements conducted if applicable:	(see Form A.26A)	—
	a) Value of 60 °C of field-wiring terminal box not exceeded		N/A
	b) Surface of flammable liquids and parts in contact with this liquids		N/A
	c) Surface of non-metallic ENCLOSURES	Measured on plastic enclosure	P
	d) Parts made of insulating material supporting parts connected to MAINS supply		N/A
	e) Terminals carrying a current more than 0,5 A	For measuring terminals	P
10.4	Conduct of temperature tests		P
10.4.1	Tests conducted under reference test conditions and manufacturer's instructions	(see Form A.26A)	P
10.4.2	Temperature measurement of heating equipment		N/A
	Tests conducted in test corner	(see Form A.26A)	N/A
10.4.3	Equipment intended for installation in a cabinet or wall	Not such equipment	N/A
	Equipment built in as specified in installation instructions	(see Form A.26A)	N/A
10.5	Resistance to heat	Checked as below	P
10.5.1	Integrity of CLEARANCE and CREEPAGE DISTANCES	(see Form A.16)	P
10.5.2	Non-metallic ENCLOSURES	(see Form A.27)	P
	Within 10 min after treatment:		—
	Equipment subjected to suitable stresses of 8.2 and 8.3 complying with criteria of 8.1	See form A21A	P
10.5.3	Insulating material		P
	a) Parts supporting parts connected to MAINS supply		P

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Clause	Requirement — Test	Result — Remark	Verdict
	b) TERMINALS carrying a current more than 0,5 A		P
	Examination of material data; or		P
	in case of doubt:		P
	1) Ball pressure test; or	(see Form A.28)	P
	2) Vicat softening test of ISO 306	(see Form A.29)	N/A

11	PROTECTION AGAINST HAZARDS FROM FLUIDS		N/A
11.1	Protection to OPERATORS and surrounding area provided by EQUIPMENT	No fluids contained in equipment.	N/A
	All fluids specified by manufacturer considered		N/A
11.2	Cleaning	(see Form A.30)	N/A
11.3	Spillage	(see Form A.30)	N/A
11.4	Overflow	(see Form A.30)	N/A
11.5	Battery electrolyte		N/A
	Battery electrolyte leakage presents no HAZARD		N/A
11.6	Specially protected equipment	(see Form A.30)	N/A
11.7	Fluid pressure and leakage		N/A
11.7.1	Maximum pressure.....	(see Form A.31)	—
	Maximum pressure of any part does not exceed P_{RATED}		N/A
11.7.2	Leakage and rupture at high pressure		—
	Fluid-containing parts subjected to hydraulic test if.....	(see Form A.31)	—
	a) product of pressure and volume > 200 kPa; and		N/A
	b) pressure > 50 kPa		N/A
	Parts of refrigerating systems meets pressure-related requirements of IEC 60335-24 or IEC 60335-2-89		N/A
11.7.3	Leakage from low-pressure parts	(see Form A.32)	N/A
11.7.4	Overpressure safety device		N/A
	Does not operate in NORMAL USE		N/A
	a) Connected as close as possible to parts intended to be protected		N/A
	b) Easy access for inspection, maintenance and repair		N/A
	c) Adjustment only with TOOL		N/A
	d) No discharge towards person		N/A
	e) No HAZARD from deposit of discharged material		N/A
	f) Adequate discharge capacity		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	No shut-off valve between overpressure safety device and protected parts		N/A
12	PROTECTION AGAINST RADIATION, INCLUDING LASER SOURCES, AND AGAINST SONIC AND ULTRASONIC PRESSURE		N/A
12.1	Equipment provides protection		N/A
12.2	Equipment producing ionizing radiation		N/A
12.2.1	Ionizing radiation	(see Form A.33)	N/A
12.2.1.1	Equipment meets the following requirements:		—
	a) if intended to emit radiation meets requirements of 12.2.1.2; or		N/A
	tested, classified and marked in accordance to IEC 60405		N/A
	b) if only emits stray radiation meets requirements of 12.2.1.3		N/A
12.2.1.2	Equipment intended to emit radiation		—
	Effective dose rate of radiation measured		—
	If dose rate exceeds 5 µSv/h marked with the following:		—
	a) symbol 17 (ISO 361)		N/A
	b) abbreviations of the radionuclides		—
	c) with maximum dose at 1 m; or		—
	with dose rate value between 1 µSv/h and 5 µSv/h in m		—
12.2.1.3	Equipment not intended to emit radiation	(see Form A.34)	—
	Limit for unintended stray radiation of 1 µSv/h at any easily reached point kept		—
12.2.2	Accelerated electrons		—
	Compartments opened only by the use of a TOOL		N/A
12.3	Ultraviolet (UV) radiation		N/A
	No unintentional HAZARDOUS escape of UV radiation:		—
	– checked by inspection; and		N/A
	– evaluation of RISK assessment documentation		N/A
12.4	Microwave radiation		N/A
	Power density does not exceed 10 W/m ²		N/A
12.5	Sonic and ultrasonic pressure		N/A
12.5.1	Sound level	(see Form A.35)	—
	No HAZARDOUS sound emission		N/A
	Maximum sound pressure level measured and calculated for maximum sound power level as specified in ISO 3746 or ISO 9614-1		N/A

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Clause	Requirement — Test	Result — Remark	Verdict
	Instruction describes measures for protection		N/A
12.5.2	Ultrasonic pressure	(see Form A.36)	N/A
	Equipment not intended to emit ultrasound does not exceed limit of 110 dB between 20 kHz and 100 kHz		N/A
	Equipment intended to emit ultrasound:		N/A
	Outside useful beam does not exceed limit of 110 dB between 20 kHz and 100 kHz		N/A
	If inside useful beam above values exceeded:		—
	Marked with Symbol 14 of table 1		N/A
	and following information in the documentation:		—
	a) dimensions of useful beam		N/A
	b) area where ultrasonic pressure exceed 110 dB		N/A
	c) maximum sound pressure inside beam area		N/A
12.6	Laser sources		N/A
	Equipment meets requirements of IEC 60825-1		N/A

13	PROTECTION AGAINST LIBERATED GASES AND SUBSTANCES, EXPLOSION AND IMPLOSION		N/A
13.1	Poisonous and injurious gases and substances		N/A
	No poisonous or injurious gases or substances liberated in NORMAL CONDITION		N/A
	Attached data/test reports demonstrate conformity		N/A
13.2	Explosion and implosion		N/A
13.2.1	Components		N/A
	Components liable to explode:		—
	Pressure release device provided; or		N/A
	Apparatus incorporates operator protection (see also 7.7)		N/A
	Pressure release device:		—
	Discharge without danger		N/A
	Cannot be obstructed		N/A
13.2.2	Batteries and battery charging	(see Form A.37)	—
	If explosion or fire HAZARD could occur:		—
	Protection incorporated in the equipment; or		N/A
	Instructions specify batteries with built-in protection		N/A
	In case of wrong type of battery used:		—
	No HAZARD; or		N/A
	Warning by marking and within instructions		N/A
	Equipment with means to charge rechargeable batteries:		—

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Clause	Requirement — Test	Result — Remark	Verdict
	Warning against the charging of non-rechargeable batteries; and		N/A
	Type of rechargeable battery indicated; or		N/A
	Symbol 14 used		N/A
	Battery compartment design		N/A
	Single component failure		N/A
	Polarity reversal test		N/A
13.2.3	Implosion of cathode ray tubes		N/A
	If maximum face dimensions > 160 mm		—
	Intrinsically protected and correctly mounted; or		N/A
	ENCLOSURE provides protection:		N/A
	If non-intrinsically protected:		—
	Screen not removable without TOOL		N/A
	If glass screen, not in contact with surface of tube		N/A

14	COMPONENTS AND SUBASSEMBLIES		P
14.1	Where safety is involved, components and subassemblies meet relevant requirements	(see TABLE 1)	P
14.2	Motors	No motors	N/A
14.2.1	Motor temperatures		N/A
	Does not present a HAZARD when stopped or prevented from starting; or	(see Form A.1; A.26B)	N/A
	Protected by over-temperature or thermal protection device conform with 14.3		N/A
14.2.2	Series excitation motors		N/A
	Connected direct to device, if overspeeding causes a HAZARD		N/A
14.3	Overtemperature protection devices	No such devices	N/A
	Devices operating in a SINGLE FAULT CONDITION	(see Form A.38)	N/A
	a) Reliable function is ensured		N/A
	b) RATED to interrupt maximum current and voltage		N/A
	c) Does not operate in NORMAL USE		N/A
	If self-resetting device used to prevent a HAZARD, protected part requires intervention before restarting		N/A
14.4	Fuse holders	No fuse holders	N/A
	No access to HAZARDOUS LIVE parts		N/A
14.5	MAINS voltage selecting devices	No such devices	N/A
	Accidental change not possible		N/A
14.6	MAINS transformers tested outside equipment	(see Form A.39 and A.40)	N/A

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Clause	Requirement — Test	Result — Remark	Verdict
14.7	Printed circuit boards		P
	Data shows conformity with V-1 of IEC 60695-11-10 or better; or	See table 1	P
	Test shows conformity with V-1 of IEC 60695-11-10 or better	(see Form A.23)	N/A
	Not applicable for printed wiring boards with limited-energy circuits (9.4)		N/A
14.8	Circuits or components used as TRANSIENT OVERVOLTAGE limiting devices	No such components	N/A
	Test conducted between each pair of MAINS SUPPLY TERMINALS	(see Form A.41)	N/A
	No HAZARD resulting from rupture or overheating of the component:		—
	– no bridging of safety relevant insulation		N/A
	– no heat to other parts above the self-ignition points		N/A

15	PROTECTION BY INTERLOCKS		N/A
15.1	Interlocks are designed to remove a HAZARD before OPERATOR exposed	No interlocks	N/A
15.2	Prevention of reactivation		N/A
15.3	Reliability		N/A
	Single fault unlikely to occur; or		N/A
	Cannot cause a HAZARD		N/A

16	HAZARDS RESULTING FROM APPLICATION		P
16.1	REASONABLY FORESEEABLE MISUSE		P
	No HAZARDS arising from settings not intended and not described in the instructions	See risk management report	P
	Other cases of REASONABLY FORESEEABLE MISUSE addressed by RISK assessment	See risk management report	P
16.2	Ergonomic aspects		N/A
	Factors giving rise to a HAZARD the RISK assessment is reflecting those aspects:		—
	a) limitation of body dimensions		N/A
	b) displays and indicators		N/A
	c) accessibility and conventions of controls		N/A
	d) arrangement of TERMINALS		N/A

17	RISK ASSESSMENT		P
	RISK assessment conducted, if HAZARD might arise and not covered by Clauses 6 to 16	See the risk management report	P

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Clause	Requirement — Test	Result — Remark	Verdict
	TOLERABLE RISK achieved by iterative documented process covering the following:		—
	a) RISK analysis	See the risk management report	P
	Identifies HAZARDS and estimates RISK		P
	b) RISK evaluation	See the risk management report	P
	Plan to judge acceptability of resulting RISK level based on the estimated severity and likelihood of a RISK		P
	c) RISK reduction	See the risk management report	P
	Initial RISK reduced by counter measures;		P
	Repeated RISK evaluation without new RISKS introduced		P
	RISKS remaining after RISK assessment addressed in instructions to RESPONSIBLE BODY:	See the risk management report	—
	Information contained how to mitigate these RISKS	Contained in the risk management report	P
	Following principles in methods of RISK reduction applied by manufacturer in given order:	See the risk management report	—
	1) RISKS eliminated or reduced as far as possible		P
	2) Protective measures taken for RISKS that cannot be eliminated		P
	3) User information about residual RISK due to any defect of the protective measures		P
	Indication of particular training is required	Shown in user manual	P
	Specification of the need for personal protective equipment		P
	Conformity checked by evaluation of the RISK assessment documentation	See the risk management report	P

ANNEX F	ROUTINE TESTS		N/A
	Manufacturer 's declaration		N/A

ANNEX H	QUALIFICATION OF CONFORMAL COATINGS FOR PROTECTION AGAINST POLLUTION		N/A
H.1	General		N/A
	Conformal coatings meet the requirements of Clause H.2 and H.3.		N/A
H.2	Technical properties		N/A
	Technical properties of conformal coatings are suitable for the intended application. In particular:		—

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Clause	Requirement — Test	Result — Remark	Verdict
	a) Manufacturer indicate that it is a coating for PWBs;		N/A
	b) RATED operating temperature include the temperature range of the indicated application;		N/A
	c) CTI, insulation resistance and dielectric strength are suitable for the intended application;		N/A
	d) Coating have adequate UV resistance, if it is exposed to sunlight;		N/A
	e) Flammability RATING of the coating is at least the required flammability RATING of the applied PWB.		N/A
H.3	Qualification of coatings	(see Form A.42)	N/A
	Coating complies with the conformity requirements.		N/A
ANNEX K	INSULATION REQUIREMENTS NOT COVERED BY CLAUSE 6.7	(see Form A.15 and A.18)	P

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Clause	Requirement — Test	Result — Remark	Verdict

4.4		TABLE: Testing in SINGLE FAULT CONDITION – Results		Form A.1	P
Test subclause	Fault No.	Fault description	Td 4.4.3 (NOTE)	How was test terminated Comments	Meets 4.4.4
4.4.2.7	1	Transformer T1 secondary pin (5-6) S-C	10min	0.003A 0.15W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.7	2	Transformer T1 secondary pin (5-6) O-L	3.2h	The max. loading current is <u>0.6</u> A, when over <u>0.6</u> A unit shut down immediately. No damaged, no hazard. Max. temp.: T1 winding: 52.4 °C T1 core: 48.3 °C Ambient: 24.8 °C	P
4.4.2.7	3	Transformer T1 primary pin(1-2) S-C	10min	0.003A 0.15W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.7	4	Transformer T1 primary pin(3-4) S-C	10min	0.003A 0.15W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.12	5	IC4 pin(1-3) S-C	10min	0.01A 1.1W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.12	6	IC4 pin(3-4) S-C	10min	0.01A 1.1W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.12	7	IC4 pin 3 OC	10min	0.01A 0.09W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.12	8	IC13 pin(1-3) S-C	10min	0.01A 1.0W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.12	9	IC13 pin(3-4) S-C	10min	0.003A 0.15W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.12	10	IC13 pin 3 OC	10min	0.004A 0.17W Unit shut down by protection, recovered after removing the fault. No damage, no hazard.	P
4.4.2.12	11	C2 S-C	10min	0.004A 0.11W, C2 damaged, no hazard.	P
4.4.2.12	12	D3 S-C	10min	Normal work. No damage, no hazard.	P

NOTE Td = Test duration in hh:mm:ss

Record dielectric strength test on Form A.18 and temperature tests on Form A.26A and or A.26B.

Record in the comments column for each test whether carried out during or after SINGLE FAULT CONDITION.

Supplementary information:

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Clause	Requirement — Test	Result — Remark	Verdict

5.1.3c)	TABLE: MAINS supply	Form A.2	P
	Marked rating..... :	220/380V Vac	—
	Phase..... :	Three	—
	Frequency :	50/60 Hz	—
	Current :	-- A	—
	Power :	-- W	—
	Power :	10VA VA	—

Test No.	Voltage [V]	Frequency [Hz]	Current [mA]	Power		Comments
				[W]	[VA]	
1	198	50	0.023	1.22	-	Not exceed the marked value by more than 10 %.
2	220	50	0.022	1.35	-	Ditto
3	380	50	0.013	1.44	-	Ditto
4	418	50	0.013	1.51	-	Ditto
5	198	60	0.023	1.20	-	Ditto
6	220	60	0.022	1.34	-	Ditto
7	380	60	0.013	1.43	-	Ditto
8	418	60	0.012	1.52	-	Ditto

NOTE – Measurements are only required for marked ratings.

Supplementary information:

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Clause	Requirement — Test	Result — Remark	Verdict

5.3	TABLE: Durability of markings	Form A.3	P
Marking method (see NOTE)		Agent	
1) Adhesive label		A Water	
2) Ink printed		B Isopropyl alcohol 70%	
3) Laser marked		C (specify agent)	
4) Film-coated (plastic foil control panel)		D (specify agent)	
5) Imprinted on plastic (moulded in)		E (specify agent)	

NOTE – Where applicable include print method, label material, ink or paint type, fixing method, adhesive and surface to which marking is fixed.

Marking location	Marking method (see above)
Identification (5.1.2)	1)
MAINS supply (5.1.3)	1)
Fuses (5.1.4)	1)
Terminals and operating devices (5.1.5.2)	2)
Switches and circuit breakers (5.1.6)	N/A
Double/reinforced equipment (5.1.7)	1)
Field wiring Terminal boxes (5.1.8)	N/A
Warning marking (5.2)	1)
Battery charging (13.2.2)	N/A

Method	Test agent	Remains legible	Label loose	Curled edges	Comments
		Verdict	Verdict	Verdict	
1)	A	Legible	No loose	Edges not curled	Pass
1)	B	Legible	No loose	Edges not curled	Pass
2)	A	Legible	No loose	Edges not curled	Pass
2)	B	Legible	No loose	Edges not curled	Pass

Supplementary information:

Supplementary information:

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Clause	Requirement — Test	Result — Remark	Verdict

6.2	TABLE: List of ACCESSIBLE parts		Form A.4	P
6.1.2	Exceptions			—
6.2	Determination of ACCESSIBLE parts			—
Item	Description	Determination method (NOTE 5)	Exception under 6.1.2 (NOTE 4)	
1	Enclosure(plastic)	V, J, R	---	
2	RS485 port	V, J, R	---	
NOTE 1 – Test fingers and pins are to be applied without force unless a force is specified (see 6.2.2)				
NOTE 2 – Special consideration should be given to inadequate insulation and high voltage parts (see 6.2)				
NOTE 3 – Parts are considered to be ACCESSIBLE if they could be touched in the absence of any covering which is not considered to provide suitable insulation (see 6.4).				
NOTE 4 – Capacitor test may be required (see Form A.5).				
NOTE 5 – The determination methods are:				
V = visual; R = rigid test finger; J = jointed test finger; P3 = pin 3 mm diameter; P4 = pin 4 mm diameter.				
Supplementary information:				

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Clause	Requirement — Test	Result — Remark	Verdict

6	TABLE: Values in NORMAL CONDITION										Form A.5	P	
6.1.2	Exceptions							11.2			Cleaning and decontamination		—
6.3.1	Values in NORMAL CONDITION (see NOTE 1)							11.3			Spillage		—
6.6.2	Terminals for external circuit							11.4			Overflow		—
6.10.3	Plugs and connections												—
Item (see Form A.4)	Voltage			Current				Capacitance		10 s / 5 s test (NOTE)			Comments
	V r.m.s.	V peak	V d.c.	Test circuit A1/A2/A3	mA r.m.s.	mA peak	mA d.c.	μC	mJ	V	μC	mJ	
1	-	29.6	-	-	-	-	-	-	-	-	-	-	Voltage levels do not exceed 33Vrms, 46.7 Vpk, or 70Vdc
2	60.1	126	-	A1	0.005	-	-	-	-	-	-	-	Current levels do not exceed 0.5mA
NOTE – A 10 s test is specified in 6.1.2 a) b). A. 5 s test is specified in 6.10.3. The capacitance level versus voltage below the limits given from figure 3 of EN 61010-1.													
Supplementary information:													

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Clause	Requirement — Test	Result — Remark	Verdict

6.3.2	TABLE: Values in SINGLE FAULT CONDITION										Form A.6	P
Item (see Form A.4)	Subclause and fault No. (see Form A.1)	Voltage			Transient (see NOTE)		Current			Capacitance	Comments	
	V r.m.s.	V peak	V d.c.	V	s	Test circuit A1/A2/A3	mA r.m.s.	mA peak	mA d.c.	μF (see NOTE)		
1	1,2,3,4	-	28	-	-	-	-	-	-	-	*	
2	1,2,3,4	60	108	-	-	-	A1	0.005	-	-	**	
1	5,6,7,8,9, 10,11, 12	-	26	-	-	-	-	-	-	-	*	
2	5,6,7,8,9, 10,11, 12	60	124	-	-	-	A1	0.005	-	-	**	

NOTE – Transient voltages must be below the limits given from Figure 2 and the capacitance below the limits from figure 3 of EN 61010-1.

Supplementary information:
 *: Voltage levels do not exceed 55Vrms, 78Vpk, or 140Vdc;
 **: Current levels do not exceed 0.5mA

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.5.2.2	TABLE: Cross-sectional area of bonding conductors	Form A.7	N/A
Conductor location	CROSS-SECTIONAL AREA [mm ²]	Verdict	

Supplementary information:

6.5.2.3	TABLE: Tightening torque test	Form A.8	N/A
Conductor location	Size of screw	Tightening torque [Nm]	Verdict

Supplementary information:

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.5.2.4	TABLE: Bonding impedance of plug connected equipment			Form A.9	N/A
ACCESSIBLE part under test	Test current [A]	Voltage attained after 1 min [V]	Calculated resistance (Maximum 0,1 or 0,2 Ω) [Ω] (NOTE 1)	Verdict	

NOTE 1 – For non-detachable power cord the impedance between protective conductor plug pin of MAINS cord and each ACCESSIBLE part shall not exceed 0,2 Ohm.

Supplementary information:

6.5.2.5	TABLE: Bonding impedance of permanently connected equipment			Form A.10	N/A
ACCESSIBLE part under test	Test current [A]	Voltage attained after 1 min (maximum 10 V) [V]	Verdict		

Supplementary information:

6.5.2.6	TABLE: Transformer PROTECTIVE BONDING screen			Form A.11	N/A
ACCESSIBLE part under test	Test current (see NOTE) [A]	Voltage attained after 1 min (maximum 10 V) [V]	Calculated resistance (maximum 0,1 Ω) [Ω]	Verdict	

NOTE – Test current must be twice the value of the overcurrent protection means of the winding. Test is specified in 6.5.2.6 a) or b).

Supplementary information:

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.5.4	TABLE: protective impedance					Form A.12	N/A	
A single component								
Component	Location	Measured		Calculated	Rated		Verdict	Comments
		Working voltage [V]	Current [A]	Power dissipation [W]	Working voltage [V]	Power dissipation [W]		
--	--	--	--	--	--	--	--	--
A combination of components								
Component	Location				Comments			
<p>NOTE – A PROTECTIVE IMPEDANCE shall not be a single electronic device that employs electron conduction in a vacuum, gas or semiconductor.</p> <p>Supplementary information:</p>								

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.7		TABLE: Insulation requirements- Clearances and Creepage				Form A.15				P		
6.2.2		Examination				6.5.4	Protective impedance				—	
6.4.2		ENCLOSURES and protective barriers				6.5.6	Current- or voltage-limiting device				—	
6.4.4		Impedance				9.6.1	BASIC INSULATION between opposite polarity				—	
Area	Location (See Form A.14)	Insulation type (NOTE 1)	WORKING VOLTAGE (NOTE 2)			Clearance		Creepage		CTI	Verdict	Comments
			RMS [V]	Peak [V]	Frequency [kHz]	Required [mm]	Measured [mm]	Required [mm]	Measured [mm]			
A	Mains to plastic enclosure	RI	380	538	--	3.0	>3	3.0	>3	>100	P	
B	Mains to accessible terminal	RI	380	538	--	3.0	>3	3.0	>3	>100	P	
C	L and N	BI	380	538	--	6.0	>9.6	6.0	>9.6	>100	P	
NOTE 1 – refer to Form A.14 for type of insulation shown in the insulation diagram used for definition of required insulation (see Form A.14)										NOTE 2 - to be		
Supplementary information: *: based on measurement category CAT III.												

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.7		TABLE: Insulation requirements- Clearances and Creepages								Form A.16		P
6.4.2		ENCLOSURES OF PROTECTIVE BARRIERS					9.6.1	Overcurrent protection basic insulation between MAINS parts			—	
8		Mechanical resistance to shock and impact					10.5.1	Integrity of CLEARANCES and CREEPAGE distances			—	
Area	Location (See Form A.14)	Insulation type	Mechanical tests (NOTE)					Test at max. RATED ambient	Measured after test (if required)		Verdict	Comment
			Applied force	Rigidity (8.2)		Drop (8.3)			Clearance	Creepage distance		
				N	Static (8.2.1)	Impact (8.2.2)	Normal (8.3.1)	Hand-held/ Plug-in				
A	Mains to plastic enclosure	RI	30	30	1000 mm	-	-	70°C	>3	>3	P	
B	Mains to accessible terminal	RI	30	30	1000 mm	-	-	70°C	>3	>3	P	
C	L and N	BI	30	30	1000 mm	-	-	70°C	>9.6	>9.6	P	
NOTE – Refer to Form A.18 for dielectric strength tests following the above tests.												
Supplementary information: *: based on measurement category CAT III.												

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.7.2.2.2	TABLE: Reliability of potted components			Form A.17 (optional)				N/A
14.1 b)	Components and subassemblies							
Temperature Cycling Test								
Manufacturer								
Type								
Construction								
Potting compound.....								
CREEPAGE distances measured.....								
CLEARANCES measured.....								
Thickness through insulation								
Adhesive test Pass/Fail								
Test temperature T °C								
Cycles at U= AC 500 V					Leakage current (500 V) mA			
Number of cycles	Date			68 h /	1 h /	2 h /	1 h /	
				125 °C	25 °C	0 °C	25 °C	
1. Cycle from		to						
2. Cycle from		to						
3. Cycle from		to						
4. Cycle from		to						
5. Cycle from		to						
6. Cycle from		to						
7. Cycle from		to						
8. Cycle from		to						
9. Cycle from		to						
10. Cycle from		to						
After Cycling Test :								
Humidity conditioning					48 h			
Requirements for dielectric strength (s. insulation diagram)					Test voltage V r.m.s		Verdict	
Basic insulation _____ V r.m.s.								
Supplementary insulation _____ V r.m.s.								
Reinforced insulation _____ V r.m.s.								
NOTE - to be used for evaluation of components containing insulation through solid insulation, when the component standard require thermal cycling test. Ref Clause 14.1 and Figure 15, option b)								
Supplementary information:								

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

6.8	TABLE: Dielectric strength tests			Form A.18	P	
4.4.4.1 b)	Conformity after application of SINGLE FAULT CONDITIONS ¹				P	
6.4	Primary means of protection ²				P	
6.6	Connections to external circuits				P	
6.7.	Insulation requirements ² (see Annex K)				P	
6.10.2	Fitting of non-detachable MAINS supply cords ¹				N/A	
9.2 a) 2)	Eliminating or reducing the sources of ignition within the equipment				N/A	
9.4 c)	Limited-energy circuit				N/A	
9.6.1	Overcurrent protection basic insulation between MAINS - parts				N/A	
	Test site altitude			500m	—	
	Test voltage correction factor (see table 10)			-	—	
Location or references from Forms A.1 and A.14	Clause or sub-clause	Humidity	Working voltage	Test voltage	Comments (NOTE)	Verdict
		Yes/No	V	r.m.s./peak/d.c.		
A	4.4.4.1b)	No	380	2210	No hazard.	P
B	4.4.4.1b)	No	380	3520	No hazard.	P
C	4.4.4.1b)	No	380	3520	No hazard.	P
¹ Record the fault, test or treatment applied before the dielectric strength test. ² Humidity preconditioning required. NOTE: Test duration may be recorded.						
Supplementary information: *: based on measurement category CAT III.						

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

7.	TABLE: Protection against mechanical HAZARDS	Form A.20	N/A
7.3.4	Limitation of force and pressure		—
7.3.5	Gap limitations between moving parts		—

Part / Location	Clause 7.3.4		Clause 7.3.5.1								Clause 7.3.5.2			Verdict	Comments
	Continuous	Temporary	Minimum gaps [mm]								Maximum gaps [mm]				
	Contact pressure max. 50 N /cm ² @ max. 150 N	max. 250 N / 3 cm ² @ max. 0,75 s	Torso 500	Head 300	Leg 180	Foot 120	Toes 50	Arm 120	Hand 100	Finger 25	Head 120	Foot 35	Finger 4		

Supplementary information:

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

8.2	ENCLOSURE rigidity test		Form A.21A	P
8.2.1	Static test	30N		P
	Material of enclosure	Metal / non-metallic		—
	Preparation for the test:			—
	Operated at ambient temperature	70 ° C	7 h	—
	Location	Comments		Verdict
	1) front	No hazard		P
	2) Side left / right	No hazard		P
	2) bottom enclosure	No hazard		P
Supplementary information:				
8.2.2	Dynamic test			P
	Material of enclosure	Metal / non-metallic		—
	Corresponding IK-code	IK08		—
	Preparation for the test:			—
	Cooled to (temperature)	° C		—
	Location	Comments		Verdict
	1) front	No hazard		P
	2) Side left / right	No hazard		P
	2) bottom enclosure	No hazard		P
Supplementary information:				

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

8.3	Drop test	Form A.21B	N/A
8.3.1	Other equipment		
	Location	Raised up to	Comments
		[mm] 30 °	—
	1) Front side		
	2) Rear side		
	3) Left side		
	4) Right side		
Supplementary information:			
8.3.2	Hand-held EQUIPMENT and direct plug-in equipment		N/A
	Material of enclosure	Metal / non-metallic	—
	Preparation for the test:		—
	Cooled to (temperature)	° C	—
	Location	Comments	Verdict
	1) Side		
	2) Edge		
	3) Corner		
Supplementary information:			

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

9	TABLE: Protection against the spread of fire			Form A.22	P
Item	Source of HAZARD or area of the equipment considered (circuit, component, liquid etc.)	Protection Method (9.1 a, b or c)	Protection details	Verdict	
1	Circuits that connected to the mains and the measuring circuits	9a, 9c	Suitable enclosure provided , comply with clause 4.4.4.3 and 9.3.1b)	P	
Supplementary information:					

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

9.3.2	TABLE: Constructional requirements		Form A.23	N/A			
14.7	Printed circuit boards						
Material tested :							
Generic name :							
Material manufacturer..... :							
Type..... :							
Colour :							
Conditioning details :							
Sample							
		1	2	3	4	5	6
Thickness of specimen	mm						
Duration of flaming after first Application	s						
Duration of flaming plus glowing After second application	s						
Specimen burns to holding clamp	Yes/No						
Cotton ignited	Yes/No						
Sample result	Pass/Fail						
Supplementary information:							

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

10.	TABLE : Temperature Measurements			Form A.26A	P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P
10.2	Temperature of windings – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P
10.3	Other temperature measurements				P
Operating conditions:		Maximum normal operation.			
Frequency.....:	60 Hz	Test room ambient temperature (ta) .. :	23.0 °C		
Voltage.....:	198 V	Test duration	1 h 0 min		
Part / Location	t_m [°C]	t_c [°C]	t_{max} [°C]	Verdict	Comments
1. Top enclosure outer	24.1	56.1	85	P	Temperature dos not exceed the limited values.
2. Plastic near Power input & voltage measuring terminal	23.7	55.7	85	P	Ditto
3. C15	25.9	57.9	105	P	Ditto
4. IC8	27.5	59.5	110	P	Ditto
5. IC4	27.1	59.1	110	P	Ditto
6. IC2	27.6	59.6	110	P	Ditto
7. IC13	27.7	59.7	110	P	Ditto
8. PCB near IC1	30.0	62.0	130	P	Ditto
9. T1 surface	28.8	60.8	110	P	Ditto
10. Plastic enclosure, inside	25.2	57.2	80	P	Ditto
11. Plastic enclosure, outside	24.2	56.2	80	P	Ditto
12. Front panel	26.7	58.7	85	P	Ditto
13. button	23.9	55.9	85	P	Ditto
14. Ambient	23.0	55.0	--	--	--
NOTE 1 - t_m = measured temperature $t_c = t_m$ corrected ($t_m - t_a + 55^\circ\text{C}$ or max. RATED ambient) t_{max} = maximum permitted temperature					
NOTE 2 - see also 14.1 with reference to component operating conditions					
NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary					
NOTE 4 - see Form A.26B for details of winding temperature measurements					
Supplementary information:					

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

10.	TABLE : Temperature Measurements			Form A.26A	P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P
10.2	Temperature of windings – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P
10.3	Other temperature measurements				P
Operating conditions:		Maximum normal operation.			
Frequency.....:	50 Hz	Test room ambient temperature (ta) .. :	23.0 °C		
Voltage.....:	418 V	Test duration	1 h 15 min		
Part / Location	t_m [°C]	t_c [°C]	t_{max} [°C]	Verdict	Comments
1. Top enclosure outer	24.4	56.4	85	P	Temperature do not exceed the limited values.
2. Plastic near Power input & voltage measuring terminal	24.0	56.0	85	P	Ditto
3. C15	23.4	55.4	105	P	Ditto
4. IC8	28.6	60.6	110	P	Ditto
5. IC4	31.1	63.1	110	P	Ditto
6. IC2	29.9	61.9	110	P	Ditto
7. IC13	30.0	62.0	110	P	Ditto
8. PCB near IC1	32.1	64.1	130	P	Ditto
9. T1 surface	37.5	69.5	110	P	Ditto
10. Plastic enclosure, inside	32.7	64.7	80	P	Ditto
11. Plastic enclosure, outside	31.2	63.2	80	P	Ditto
12. Front panel	31.1	63.1	85	P	Ditto
13. button	31.5	63.5	85	P	Ditto
14. Ambient	31.2	63.2	--	--	Ditto
NOTE 1 - t_m = measured temperature $t_c = t_m$ corrected ($t_m - t_a + 55^\circ\text{C}$ or max. RATED ambient) t_{max} = maximum permitted temperature					
NOTE 2 - see also 14.1 with reference to component operating conditions					
NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary					
NOTE 4 - see Form A.26B for details of winding temperature measurements					
Supplementary information:					

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

10.5.3	TABLE: Insulating Materials		Form A.28	N/A
10.5.3 1)	Ball-pressure test			
	Max. allowed impression diameter	2 mm		—
Part	Test temperature [°C]	Impression diameter [mm]	Verdict	
Supplementary information:				
10.5.3 2)	Vicat softening test (ISO 306)		Form A.29	N/A
Part	Vicat softening temperature [°C]	Thickness of sample [mm]	Verdict	
Supplementary information:				

8	TABLE: Mechanical resistance to shock and impact	Form A.30	N/A
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IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

11.7.2	TABLE: Leakage and rupture at high pressure					Form A.31	N/A
Part	Maximum permissible working pressure [MPa]	Test pressure [MPa]	Leakage Yes / No	Deformation Yes / No	Burst Yes / No	Comments	

NOTE – see also Annex G with requirements for USA and Canada.
 Supplementary information:

11.7.3	Leakage from low-pressure parts			Form A.32	N/A
Part	Test pressure [MPa]	Leakage Yes / No	Comments		

Supplementary information:

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict
12.2.1	TABLE: Ionizing radiation	Form A.33	N/A
12.2.1.2	Equipment intended to emit radiation		
Locations tested	Measured values [μSv/h]	Verdict	Comments
Supplementary information:			
12.2.1.3	Equipment not intended to emit radiation	Form A.34	N/A
	Max. allowed effective dose rate at 100 mm.....:	1 μSv/h	—
Locations tested	Measured values [μSv/h]	Verdict	Comments
Supplementary information:			

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

12.5.1	TABLE: Sound level	Form A.35	N/A
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Locations tested	Measured maximum sound pressure level dB(A)	Calculated maximum sound power level
At operator's normal position and at bystanders' positions		
a)		
b)		
c)		
d)		
e)		
f)		

Supplementary information:

12.5.2	Ultrasonic pressure	Form A.36	N/A
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Locations tested	Measured values		Comments
	[dB]	[kHz]	
At operator's normal position			
At 1 m from the ENCLOSURE			
a)			
b)			
c)			
d)			
e)			

NOTE – No limit is specified at present, but a limit of 110 dB above the reference pressure value of 20 μ Pa is under consideration for applicable frequencies between 20 kHz and 100 kHz.

Supplementary information:

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict
13.2.2	TABLE: Batteries	Form A.37	N/A
	Battery load and charging circuit diagram:		
	Battery type..... :		—
	Battery manufacturer/model/catalogue No..... :		—
	Battery ratings..... :		—
	Reverse polarity instalment test		
Single component failures		Verdict	
Component	Open circuit	Short circuit	
Supplementary information:			

IEC/EN 61010-1					
Clause	Requirement — Test	Result — Remark			Verdict
4.4.2.7	TABLE: MAINS transformer	Form A.39			P
4.4.2.7.2	Short circuit of T1 pin(1-2), pin(3-4) and pin(5-6)				P
14.6	MAINS transformers tested outside equipment				N/A
Type..... :	WW13-85-2				—
Manufacturer	--				—
Test in equipment					P
Test on bench					N/A
Test repeated inside equipment (see 14.6)					N/A
Optional – Insulation class (IEC 60085) of the lowest rated winding..... :		Class B		—	
Winding identification					-
Type of Protector for winding (NOTE 1)		Z	Z	Z	-
Elapsed time		20min	20min	20min	-
Current, A	primary	0.003	0.003	0.005	-
	secondary	0	0	0	-
Winding temperature, °C	primary	-	-	-	-
	(see NOTE 2) secondary	-	-	-	-
Tissue paper / cheesecloth OK ? (Pass / Fail)		P	P	P	-
Voltage tests (see NOTE 3)					-
Primary to secondary	_3520_ V _ac_	NB	NB	NB	-
Primary to core	_2210_ V _ac_	NB	NB	NB	-
Secondary to secondary	_____ V _ac_	-	-	-	-
Secondary to core	_2210_ V _ac_	NB	NB	NB	-
Verdict					-
NOTE 1: Primary fuse - PF / () A					
Secondary fuse - SF / () A					
Overtemperature protection - OP / () °C					
Impedance protection - Z					
NOTE 2: Indicate method of measurement - TC = with thermocouple					
- R = resistance method					
If resistance method is used, record resistance in cold and warm condition in FormA.26B.					
NOTE 3: Record the voltage applied and the type of voltage (r.m.s. / d.c. / peak) and for results use NB = no breakdown or B = breakdown					
Supplementary information:					

IEC/EN 61010-1					
Clause	Requirement — Test	Result — Remark			Verdict
4.4.2.7	TABLE: MAINS transformer	Form A.40			P
4.4.2.7.3	Overload tests T1 pin(1-2)				P
14.6	MAINS transformers tested outside equipment				N/A
Type	WW13-85-2				—
Manufacturer	--				—
Test in equipment					P
Test on bench					N/A
Test repeated inside equipment (see 14.6)					N/A
Optional – Insulation class (IEC 60085) of the lowest rated winding		Class B		—	
Winding identification		-	-	-	
Type of Protector for winding (NOTE 1)	Z	Z	Z	-	
Elapsed time	3.5h	2.5h	3.0h	-	
Current, A primary	0.04	0.03	0.05	-	
secondary	0.6	0.2	1.1	-	
Winding temperature, °C primary	52.4	67.8	55.2	-	
(see NOTE 2) secondary	48.3	66.0	51.3	-	
Tissue paper / cheesecloth OK ? (Pass / Fail)	P	P	P	-	
Voltage tests (see NOTE 3)					
Primary to secondary	_3520_ V _ac_	NB	NB	NB	-
Primary to core	_2210_ V _ac_	NB	NB	NB	-
Secondary to secondary	_____ V _ac_	-	-	-	-
Secondary to core	_2210_ V _ac_	NB	NB	NB	-
Verdict					-
NOTE 1:	Primary fuse	- PF / ()	A		
	Secondary fuse	- SF / ()	A		
	Overtemperature protection	- OP / ()	°C		
	Impedance protection	- Z			
NOTE 2:	Indicate method of measurement	TC = with thermocouple			
		R = resistance method			
	If resistance method is used, record resistance in cold and warm condition in FormA.26B.				
NOTE 3:	Record the voltage applied and the type of voltage (r.m.s. / d.c. / peak) and for results use NB = no breakdown or B = breakdown				
Supplementary information:					

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

14.8	TABLE: Transient overvoltage limiting devices								Form A.41	N/A
Component / Designation	Overvoltage Category	MAINS voltage [V rms]	Test voltage [V]	t_m [°C]	t_c [°C]	t_{max} [°C]	Rupture Yes / No	Circuit breaker tripped	Verdict	Comments
Test room ambient temperature		°C								
NOTE - t_m = measured temperature $t_c = t_m$ corrected ($t_m - t_a + 40$ °C or max. RATED ambient) t_{max} = maximum permitted temperature Conformity is checked by applying 5 positive and 5 negative impulses with the applicable impulse withstand Supplementary information:										

IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

Annex H	TABLE: Qualification of conformal coating for protection against pollution	Form A.42	N/A
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Technical properties			
Manufacturer			—
Type			—
Meet requirements of ANSI / UL 746E	[yes / no]		
Manufacturer declaration of coating material	[yes / no]		
Operating temperature of coating	[] °C		
Comparative tracking index (CTI)	[]		
Insulation resistance	[] Ω		
Dielectric strength	[] V		
UV resistance (if required)	[yes / no]		
Flammability rating			
Preparation of the test specimens conducted	[yes / no]		

Item	Test conditioning	Parameter	Td h	Samples						Verdict	Comments
				1	2	3	4	5	6		
1	Scratch resistance										
	Visual inspection										
2	Cold		24								
3	Dry heat		48								
4	Rapid temp. change										
5	Damp heat		24								
6	Adhesion of coating	5 N									
	Visual inspection										
7	Humidity		48								
8	Insulation resistance	>= 100 Ω									
	Visual inspection										

NOTE Td = Test duration time

Supplementary information:

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IEC/EN 61010-1			
Clause	Requirement — Test	Result — Remark	Verdict

TABLE 1: - List of components and circuits relied on for safety						P
Unique component reference or location	Application/ function	Manufacturer / trademark (NOTE 1)	Type / model	Technical data (NOTE 2)	Standard	Mark(s) of conformity evidence of acceptance (NOTE 3 and 4)
Plastic enclosure	Protection against electric shock, mechanical hazard and fire	--	--	V-0, 80°C Min. Thick: 2.0mm	EN 61010-1	UL
All PCB	Supporting parts and protection against electric shock and fire	Interchangeable	Interchangeable	V-0, 130°C	UL 796	UL
E-capacitor (C1,C2)	Protection against electric shock	Interchangeable	Interchangeable	10µF, Min. 400V, 105°C	EN 61010-1	Test with appliance
Optical isolator (IC2,IC4,IC5, IC11,IC13)	Protection against electric shock	Interchangeable	Interchangeable	max 110°C (Double protection optical isolators, providing 5000 V ac isolation)	IEC/EN60747-5-2 IEC/EN 60950-1 UL 1577	VDE UL
NOTE → 1 List all different manufacturers of the above components → 2 May include electrical, mechanical values → 3 List licence no or method of acceptance → 4 asterisk indicates mark assuring agreed level of surveillance						

Attachment 1 Photos of Product

Photo 1

General View

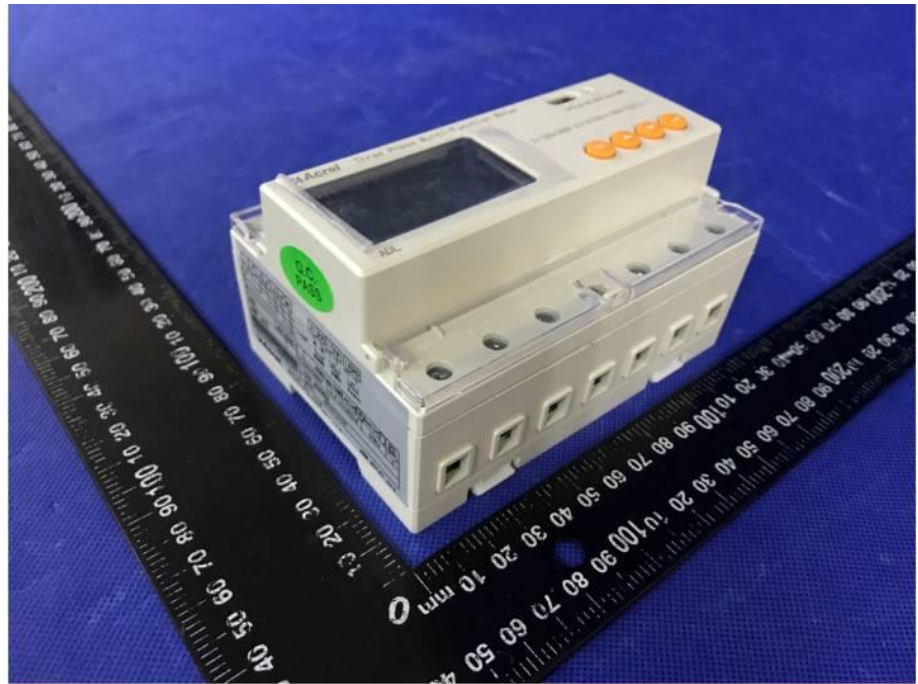


Photo 2

General View

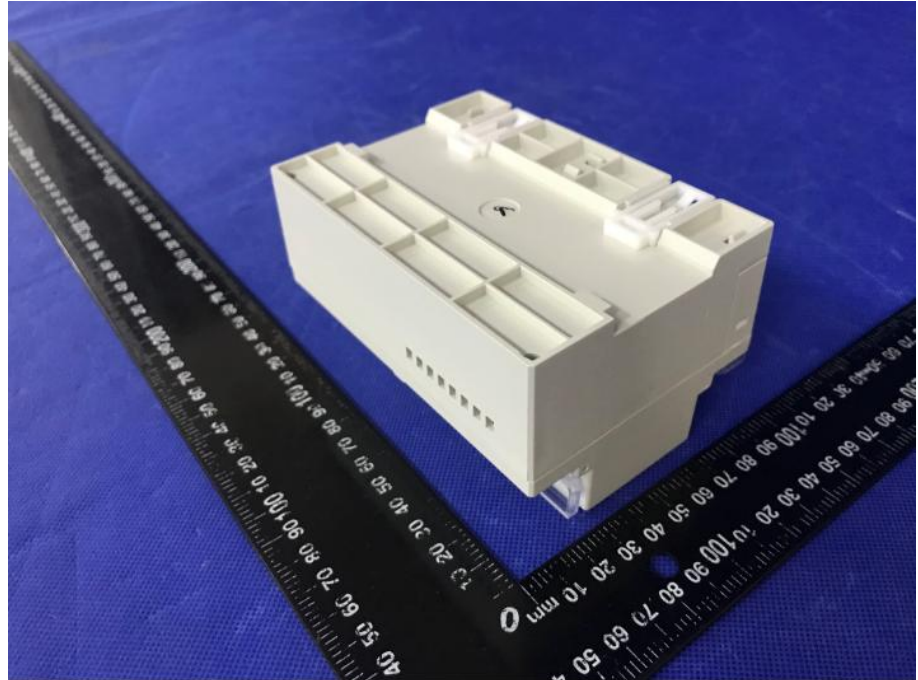


Photo 3
Internal View



Photo 4
Internal View

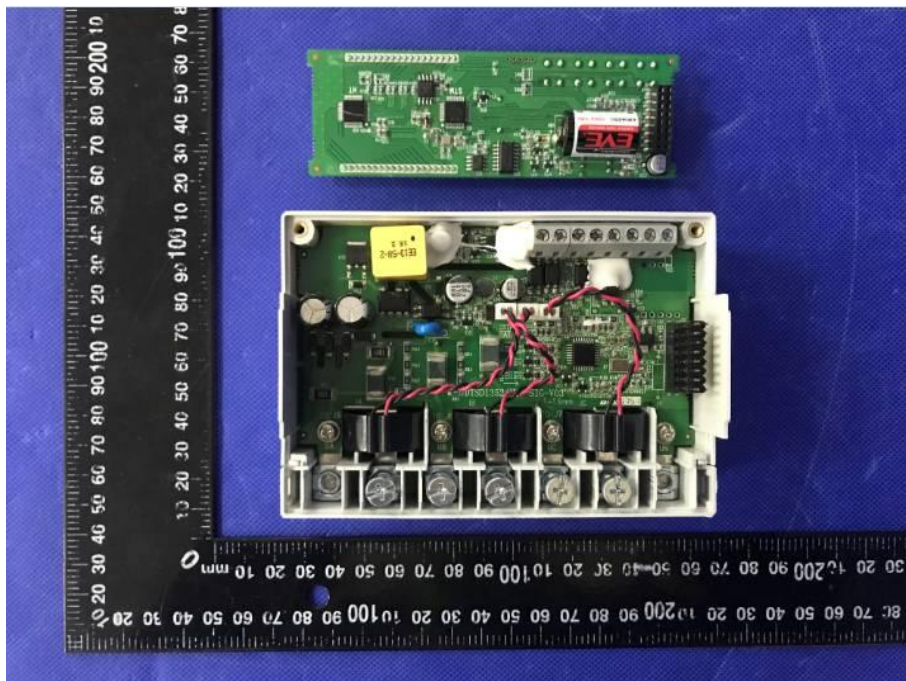


Photo 5
Internal View



Photo 6
PCB view

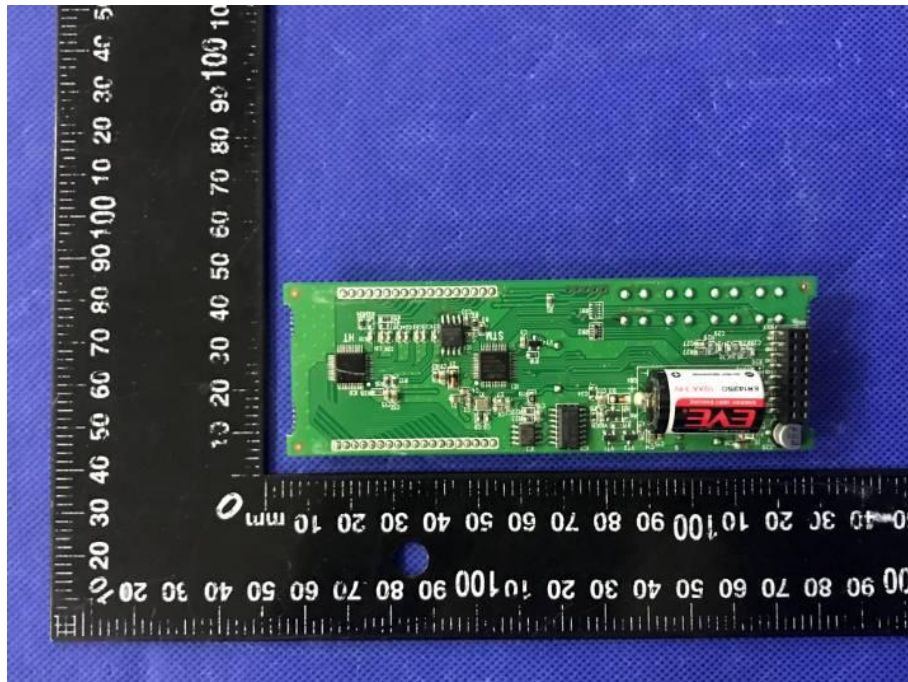


Photo 7

PCB view

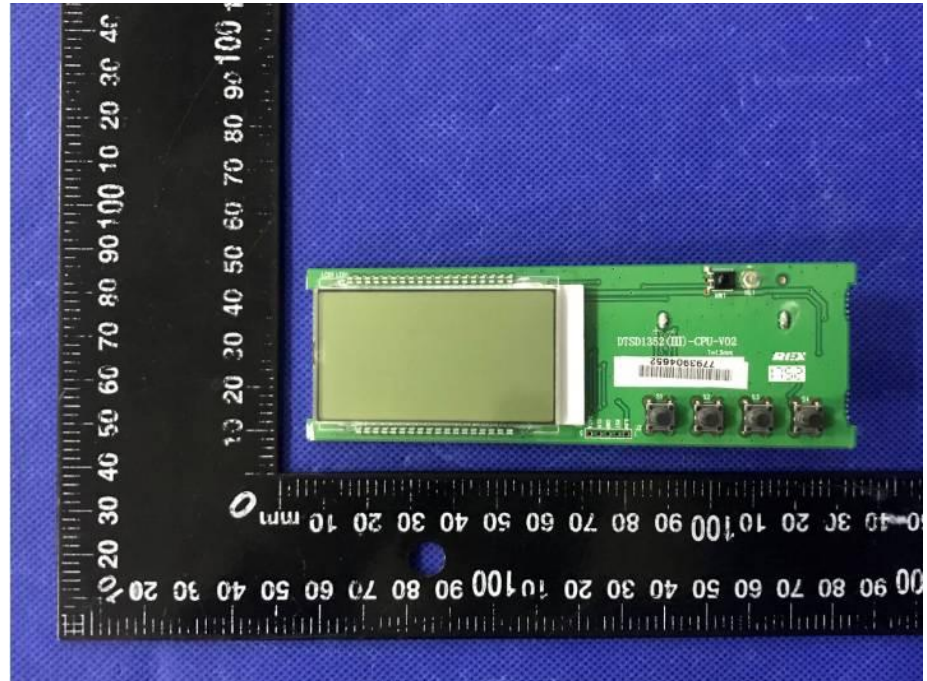


Photo 8

PCB view

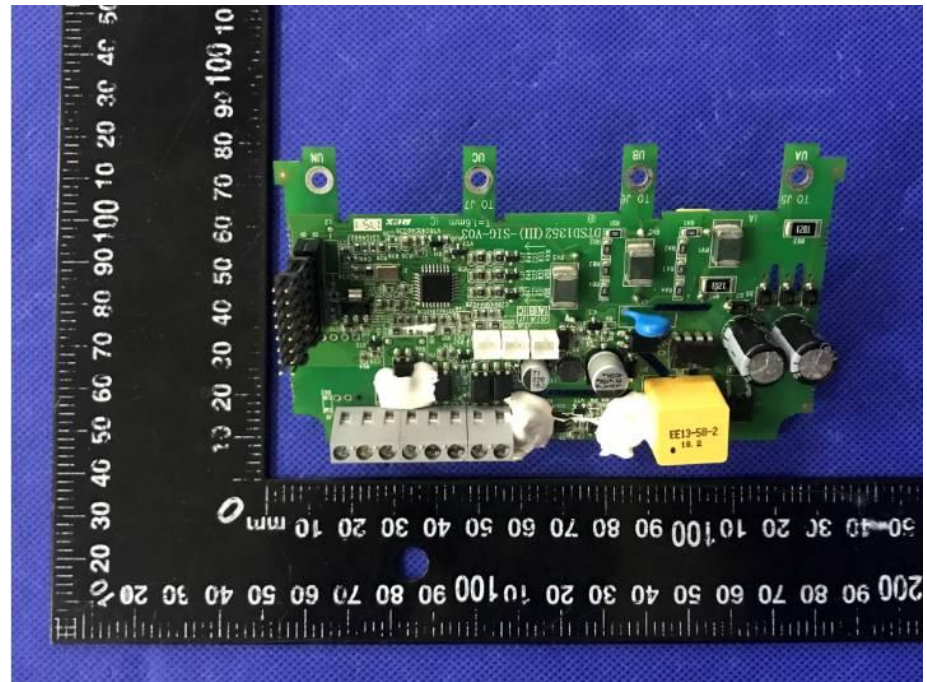
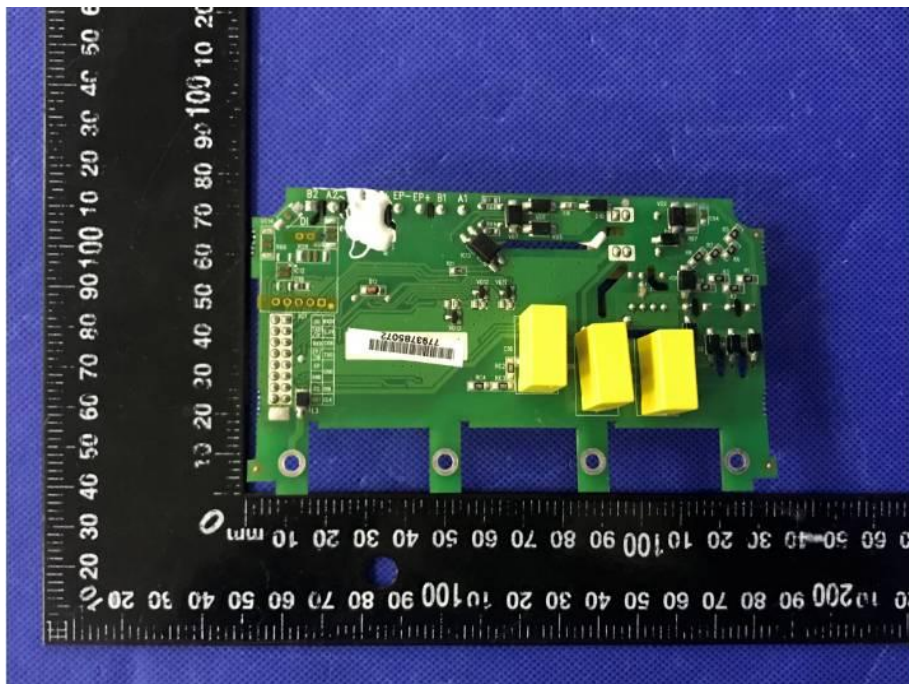


Photo 9

PCB view



---End of Report---